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How to Swim

ANNETTE KELLERMANN

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[redacted]

MISS KELLERMANN IN THE HIGH DIVING SCENE FROM "A DAUGHTER OF THE GODS." THE ESCAPE FROM THE PRISON TOWER BY A HUNDRED-FOOT DIVE.

HOW TO SWIM

BY

ANNETTE KELLERMANN

Illustrated

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PART I

THE STORY OF MY SWIM TO FAME AND FORTUNE

PART I: THE STORY OF MY SWIM TO FAME AND FORTUNE

CHAPTER I

THE LITTLE GIRL WHO WAS AFRAID OF THE WATER

I WAS born in Sidney, New South Wales, Australia, in the year of our Lord 18—but look at the pictures in this book and figure it out for yourself.

My father was a native Australian, and my mother Alsatian French. I am not a sea captain's daughter nor did I come of fisher folk. In fact, my mother was a musician and in the days of my childhood conducted the Australian Musical Conservatory, and while there Nellie Mitchell, the great Melba, took instruction under her. Later mother became one of Paris's greatest pianists.

My family had no intention of making a mermaid of me, amateur or professional. But my swimming came about as a means of curing a very distressing condition of my legs, which one doc-

tor said was caused by allowing me to walk too soon; but the other doctor said that I had chalk in my bones, which, as I remember it, seemed a very much more scientific explanation. But while the cause was a matter of argument, there was no doubt about the effect, for I had to wear painful and humiliating steel braces when I walked.

One day when I was still a very little girl, my father went to see a third doctor, and came home and informed me that I was to take swimming lessons. To those of you who know me now as the "Diving Venus," "Queen of the Mermaids," "Neptune's Daughter," and what not, this may sound very strange; but the truth was that I was terrified at the thought of swimming. Perhaps my fears were increased by my humiliation because of my dread of exposing my weak and ill-formed legs. But all pleading availed me nothing—daddy had discussed the matter with the doctor and the doctor was very, very sure that swimming was the only thing that would help me.

In Cavill's Baths in Sidney I received my first swimming lessons. My brothers and sister had learned to swim in four or five lessons, but eighteen were required for me.

Only a cripple can understand the intense joy

that I experienced when little by little I found that my legs were growing stronger and taking on the normal shape and the normal powers with which the legs of other youngsters were endowed.

In Australia practically all children are taught to swim, but in my case if my father had not been especially persistent, I am sure I never could have overcome my childish dread and fears. But for his wisdom I might have been hobbling about on crutches to-day, instead of skating, dancing and indulging in twenty-five mile constitutionals, in addition to making my regular livelihood as a moving picture mermaid, or flirting with Toto, the Funny Fish, through the walls of the glass tank at the New York Hippodrome.

Of course, I had some other exercises in calisthenics, but it is to swimming that I feel I owe the great debt. At the age of thirteen my legs were practically normal, though for some years afterwards one of them was easily susceptible to strain, and I was compelled to wear tightly laced high shoes until the age of eighteen.

In my early childhood swimming I was taught the breast stroke and mastered it thoroughly. Swimming meant for me a healthful and necessary means whereby my limbs could be exercised while free from the horrible steel braces.

At the age of fifteen I went to the Farmers Baths in Farm Cove, Sidney, and took up the sport with renewed interest. In six weeks' time I mastered all swimming strokes, including the trudgeon. It was then that I caught the mermaid fever and told my father of my ambition to enter one of the many swimming competitions open to Australian women. My father laughingly opposed my desire to enter the race, as he had not seen me swim since the age of nine, and thought it quite absurd that I should compete with well-known swimmers, one of whom was the champion of Australia.

My first contest was a forty-five yard event, in which I swam against Miss Buttel, who was regarded as the fastest girl swimmer in our locality. I came in winner by a couple of yards, very much to my father's astonishment. After that I was always placed at scratch, and lost only one race. My father's incredulity was immediately changed to a most enthusiastic and persevering faith. To him had been due my childhood swimming which kept me from remaining a cripple, and to his revived interest I owe much of my success as a professional swimmer. Father took up my training in a systematic fashion and through thick and thin saw that I stuck to it.

MISS KELLERMANN AS SHE APPEARED WHEN WINNING LAURELS AS THE WORLD'S GREATEST WOMAN SWIMMER.

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The rest of the family were doubtful that anything outside of a little local notoriety could ever come of my swimming. But I was certain that there was no hope for me in music, and equally determined to make my mark in something; hence, with father's more mature will to make smooth the road, I took up swimming with an earnestness that was bound to succeed.

It was not long until I won the championship for New South Wales by swimming 100 yards in one minute and eighteen seconds. The same year I won the one mile championship in thirty-two minutes and twenty-nine seconds—at that time a world's record, which I later lowered to twenty-eight minutes. I also began to swim for distance and did ten miles in the Yarra River near Melbourne.

In those days I took Fred Lane for my ideal swimmer, and I was told that I imitated his trudgeon stroke perfectly. For the single overarm stroke I took Percy Cavill as a model. I also developed a keenness for diving and made my first public display at the Farmers Baths, where I dived with Vera Buttel, making two plunges from the fifty-foot board.

About this time the Sidney *Bulletin* and the Melbourne *Punch* became interested in my swim-

ming, and encouraged me to follow it up as a profession. Soon I began to give public exhibitions in the principal Melbourne baths, and by request to give lessons. Then came an offer from the Melbourne Exhibition Aquarium where, in what was then the largest glass tank in the world—sixty feet—with fish swimming all about me, I gave two shows a day.

The next winter I was engaged by Bland Holt for his wonderful production, "The Breaking of the Drought," at the Theatre Royal in Melbourne, where I gave a diving exhibition and seaside gala. It was a very novel scene, a real stage flooded with real water. It was here I had an awful experience. Through my own foolhardiness I was nearly sucked down the hole through which the water was being emptied from the stage [illegible]. Fortunately, I had the presence of mind to [illegible] the end of a beam which was projecting [illegible] and screaming hard, managed to [illegible]

[illegible] other Australian records than [illegible] At one time I swam down the [illegible] two and a half miles in forty- [illegible] a "dead" river and very diffi- [illegible] Later I did five miles down

the river at an average of twenty-one minutes to the mile.

I gave exhibitions throughout Australia, one stop of my itinerary being at Broker's Hill where I swam to entertain the Australian miners while the thermometer stood at 112 degrees in the shade.

All in all I was doing very well indeed as a professional swimmer in my native country, but Australia, though big in area, was not big enough in population to satisfy our ambition.

In England were more people, more theatres, and more money to be earned by professional swimmers. Indeed, in Australia swimming is so much a sport for every one, and amateur swimming contests and exhibitions so plentiful, that the very abundance of the sport makes it commonplace, and there is less opportunity for the professional swimmer. So father and I decided to go to England.

CHAPTER II

THREE-FOURTHS ACROSS THE ENGLISH CHANNEL

SUCCESS in England did not come so easily. We were utter strangers, and theatrical managers at that time were no more interested in a "Diving Venus" than they were in a "Flying Mercury." I secured a few private engagements and swam before the Duke and Duchess of Connaught at the Bath Club, but high society was not going in for mermaids enough that season to keep the wolf in his den. At one time father and I were reduced to such desperate straits that we had to take rooms down at King's Cross at ten shillings each for board and lodging.

In order to make the English people take notice, we planned that I should swim down the Thames from Putney Bridge to Blackwall. It was an awful trip. I shall never forget that swim through the flotsam and jetsam of London, dodging tugs and swallowing what seemed like pints of oil from the greasy surface of the river. I ar-

rived at Blackwall after three and a half hours in the water, absolutely starving, and there was nothing to eat. Lunch had been forgotten. The wharf-keeper's "tea" of bread and cheese had just been brought, and he generously gave it to me. Never before had food tasted like those hunks of bread and cheese which I devoured, sitting on the wharf in my bathing costume.

But this fearful swim was not without its results. The sporting man of the *Daily Mirror* looked me up, examined my records and finally told me that if I would attempt to swim the English Channel he would "run me." He agreed to pay me eight pounds a week while I was in training, and father and I were to go down to Dover while the *Mirror* was to announce every day that I would swim along the shore from one summer resort to another.

Success seemed within our grasp, but there was a black week for us. When we reached Dover dad decided to go to the finest house in town. That was just like him. We walked boldly in and demanded—demanded, mind you—to see some rooms. Very well! We were shown them. Dad asked me in a very dignified manner whether I thought they would suit.

"I think so," said I, trying to appear none too eager.

"How much?" said dad, turning to the landlady.

"Two guineas each per week." And we with only a ha'penny and nothing coming in for seven days!

At this point dad did a fine acting stunt. He told the landlady that the *Daily Mirror* was backing me to swim the Channel and what our plans were. She listened intently, and was so much impressed that when dad thrust his hand into his pocket, observing in a very lordly way, "Perhaps I had better give you a check," she was quite profuse in her refusals to take it.

But we didn't dare to ask for any loan, however small. We bought no newspaper for a week, and had to watch our chance to look over somebody's shoulder in order to see what the sporting man was saying about us.

In this preparatory training I made many swims along the English coast. I started out by swimming from Dover, four and a half miles, to St. Margaret's Bay; Dover, nine miles, to Deal; Deal, eleven miles, to Ramsgate; Ramsgate, ten miles, to Margate; and so I worked up the distances, making good copy for the *Mirror*

all the while, and finally swam from Dover to Ramsgate, a distance of twenty-four miles. After I had done that I felt that I was more or less ready for the Channel stunt.

There were seven of us that made the start for the Channel swim that night. One of these was Burgess, who afterward actually did swim from England to France in twenty-three and one-half hours. He was the only man who ever did it. Wolffe, who was a very fast swimmer, almost did it. On one occasion he got within a quarter of a mile of Calais, and then had to give up. And it only took him eleven hours to go all that distance, which was marvellous.

We didn't all start together. The swimmers, with their little bands of friends and backers, and the representatives of the different papers who were "running" them, were more than a mile apart in some cases. I started from Dover, others from St. Margaret's Bay, three miles off, while some started from points farther along the coast. The reason for each having a different point of departure from the others was that each had studied the coast and the tides and had his opinion as to the most advantageous point of departure. You sometimes have to wait for days before you can get a good time to start—the right weather

and tide. The Channel is most treacherous. The idea is to catch the tide running northerly, avail yourself of this for a certain time, and, though carried northeast, cut in when farther out in the Channel to the return tide, so to speak. You see, your course is not a straight but a zig-zag one. If it were only a matter of swimming twenty-two miles, the distance from Calais to Dover, the task would not be so difficult, even if the sea were a bit choppy. But having to ziz-zag by reason of the tides, the actual swimming distance across the Channel is something more than forty miles.

It was about two o'clock in the morning when we assembled on the beaches. Channel swimmers always start in the middle of the night in order to get the hardest three or four hours of the work done while they feel most fit. Then, when their strength and courage begin to wane, daylight comes and gives them new hope and vigour. The first two hours of a long-distance swim are very difficult. It takes one that long to settle down to steady work, to get one's pace, to feel confident that one is doing the regulation twenty-eight strokes to the minute.

After the pores of my skin had been rubbed full of porpoise oil and my goggles glued on, I was ready. The men, who started from different

MISS KELLERMANN COMBINED THE ROMANCE OF MYTHOLOGY WITH THE MYSTERY OF THE SEA IN THE NEW AQUATIC DRAMA.

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points along the coast, wore no clothes, but I was compelled to put on a tiny bathing suit. Small as it was, it chafed me. When I finished, my flesh under the arms was raw and hurt fearfully.

We were off. I was accompanied by a steam tug and a row boat, as was each of my rivals. I swam practically between the two, the steam vessel keeping some three hundred feet off, so that I should not be affected by the wash, and the smaller craft about half that distance, always ready to come to my instant aid, should I need it.

You start out absolutely alone, so as to have everything authentic. No one is allowed to give you the slightest assistance. If you so much as touch the boat or rest your fingers on the tip of an oar, you are "declared out." Every half hour the big boat slows down and you swim alongside; they pass you a long-snouted chemical cup containing hot soup or chocolate, which you snatch as they let go of it. Or they hand you tiny inch-square sandwiches from the end of a long stick.

A manufacturer had supplied me with a good deal of chocolate as an advertisement, and I used it. But I am a "liverish" person, and so I'd been out only four hours when the chocolate and the chop of the water made me very seasick. From

then on, for the rest of the swim, I was seasick every half hour. But I stuck it out for six and three-quarter hours. You will wonder that I remained in the water so long, suffering from seasickness and the chafing of my bathing suit, and cold and weariness. But dad and I were desperately poor—we must have money. And I kept saying to myself, "The longer you stick, the more you get!"

For this attempt at swimming the Channel I got thirty pounds, about one hundred and fifty dollars. But if I gained thirty pounds of English gold, I lost seven pounds of good Australian flesh.

The other contestants were in the water longer than I was, but not one of them got so far, though they were all men. The winner, so far as endurance was concerned, was a Yorkshireman, who was well-trained and had a good "tummy." And, believe me, a good "tummy" is very essential for that kind of a contest. One must have a good furnace at work, not only to supply one with steam, but to protect oneself against the extreme cold of that North Sea water.

On other occasions I have tried to swim the Channel. Once I stayed in the water ten and one-half hours and got three quarters of the way

across. My record—for a woman—still holds. I had the endurance but not the brute strength that must be coupled with it. I think no woman has this combination; that's why I say that none of my sex will ever accomplish that particular stunt.

After this, I went in for long-distance swimming entirely. *The Auto,* the big sporting paper in Paris, was "running" an annual event called "The Swim Through Paris." The course, a little over seven miles, runs practically through the heart of the city. Probably half a million people crowd the banks of the Seine to witness this contest.

I entered the race with seventeen men. Each swimmer was accompanied by an attendant in a little boat, who passed him things to eat whenever he wanted them, and looked after him generally. In my boat were dad, a friend, and two oarsmen. As I pushed my way through the dirty water of the Seine, the people would cry to me, "Come on, Mademoiselle, you've only one more kilometer, two more bridges, that's all!"

This was one of those kindly prevarications intended to cheer me up. But they shouldn't have done it, for I would make a dash or sprint—trying to wind up with a flourish—and would get out

of my stroke and use up most of my reserve strength. Because the river was full of curves and I couldn't see ahead, they fooled me for a little while.

At last, when I thought I'd reached the last bridge and they called out, "Only two kilometers more!" I was so disappointed that I began to cry. I was worried, too, for I was to receive forty pounds for the race if I finished—and, as usual, we needed the money!

Just then Burgess came along. He had started handicapped, half an hour behind me, but had caught up. He saw that I'd been crying and asked me what was up. When I told him how they'd been fooling me, he was very sympathetic. "Come on," he urged, and swam alongside me, pacing me, and by his chivalry running the risk of losing the race himself, for the racers behind were coming on apace.

At the last hundred yards we made a dash for it, and touched the goal together—a tie! There were eighteen starters, but only four of us finished. It was the most thrilling race I was ever in!

After my Seine swim, I sought new worlds to conquer, or, at least, new worlds sought me, for Baroness Isa Cescu, the best known Viennese

swimmer, challenged me for a race in the Danube from Tuln to Vienna, a distance of thirty-six kilometers, about twenty-two miles.

The Danube is very treacherous. Its waters are icy cold and it runs so fast that there are dangerous eddies everywhere. Half the game in swimming that course is knowing your ground.

Well, we started, swimming far apart. I had not gone far before I found myself sucked into a shallow whirlpool. The water was only about six inches deep and was whirling with great force and speed over a bed of sharp pebbles. Before I could work my way out, my legs were one mass of cuts and bruises.

I won the race easily, by about three-quarters of an hour.

After a few more contests, I gave up long-distance swimming and went back to the London Hippodrome for the winter.

The following spring dad and I came to America. We soon found that there was no long-distance swimming to be done, and as we were still very poor I determined to capitalise the various water-stunts, particularly high diving, which I had learned in Australia. That is how I came to be known in America more as a water-feat artist than as a long-distance swimmer.

For a long time I'd had an idea that I couldn't develop in any way except through motion pictures. So I practically peddled myself among the various moving picture studios. But none of the directors seemed to want me. Then I asked Captain Leslie Peacock, a successful scenario writer, to write a scenario about fairies and mermaids for me. A few days later, President Laemmle of the Universal sent for me. Captain Peacock had talked to him about my scheme. While Laemmle seemed dubious about my project, he was willing to discuss it with me. The outcome of our interview was that Captain Peacock wrote "Neptune's Daughter." And let me say that, although they made a million dollars out of it, nobody in that concern had any faith in the picture until it was put on at the Globe Theatre in New York, and they realised what the public thought of it. They begrudged every bit of the thirty-five thousand dollars that went into it.

We went to Bermuda to make the picture, as that island offered every natural facility that was required. It was while engaged on this job that the director and myself met with an accident which came near to putting an end to our motion picture ambitions. We were doing an

MISS KELLERMANN AS SHE DANCED BEFORE THE SULTAN IN "A DAUGHTER OF THE GODS."

under-water fight scene in a large tank, the front of which was three-quarter inch glass plate. We had asked for an inch and a half plate as the smallest thickness that could safely resist the pressure of the water, but were refused on the ground that such a thing would be too expensive.

While we were doing the fight, suddenly the front wall of the tank burst with a report like a cannon. My only thought as this happened was to keep my feet and go with the great rush of water through the hole in the glass, which was surrounded with great, jagged points. The outrush carried me twenty feet beyond the tank, where I lay, bruised and bleeding, with a great piece of flesh cut from my right foot. But the director, not having had my water experience, lost his head and was drawn through the hole sidewise and stranded among a lot of broken glass. He looked as if some one had chopped him all over with a hatchet. One wound alone, running from his armpit to his wrist, required forty-six stitches.

We were both sent to the hospital, where I lay with a wounded foot for six weeks and the director remained for five weeks.

When I had finished my work at Bermuda, I wrote down the list of water-stunts I had done in

"Neptune's Daughter," and determined to surpass them in my next piece. This I did in "A Daughter of the Gods." The principal features of value in the new picture are my water-stunts—I invented some new ones—and the kiddies. We employed about eight hundred children, nearly sixty per cent. of whom were under six years of age.

But to sit in the audience and watch yourself on the screen is a poor substitute to any one who has been on the other side of the footlights. So the stage fascination got me again, and I signed up for the big mermaid spectacle at the New York Hippodrome.

The old days of my crippled childhood seem unbelievably distant as I write this. My early physical misfortune has turned out to be the greatest blessing that could have come to me. Without it I should have missed the grim struggle upward and the reward that waited at the end of it all.

I first loved the ocean when I was a child because it made me curious. I wondered whether it really went down and down, if it would hold me up. I wanted to know what made it blue and to feel the white on a wave. My father told me that all animals swam except the monkey and

the pig. And I didn't want to stay on their level. The pig, he said, always cut its throat in the water. That interested me greatly and I begged for the chance to throw one in the briny deep; but he firmly refused. And so I have never been sure about the tale. Some day I am going to buy a pig and try it.

I have been asked ten thousand times why I like to swim and I have given a different answer every time. You see the water always teaches me a new story. It is three times as large as the land and too big to be disturbed. Therefore it has not been crossed out by man and goes on and on, the most elemental thing in all the world. And why do I believe in swimming? To put it briefly, swimming is a pleasure and a benefit, a clean, cool, beautiful cheap thing we all from cats to kings can enjoy.

The man who has not given himself completely to the sun and wind and cold sting of the waves will never know all meanings of life. Swimming is more deeply woven into the fabric of man than any other form of motion. Athletics have scarcely begun to have a history; scientists tell us that walking is comparatively modern, but man swam before he was a man and he will swim till there is no more sea.

The way in which literature does not appreciate swimming surprises me. Poets have pushed the subject far away from them, even those who loved it. Lord Byron, who swam the Hellespont, barely mentions the fact. I only wish I could turn all this into poetry but I can only tell in a faulty way what a glorious human experience it is.

No where else in life can one find an experience bringing that wonderful sense of laziness and cares all blown away—at the same time rousing all forces of resistance. New confidence and power are born within you—for haven't you just overcome the depths of the sea?

But it works the other way, too. I have turned to the ocean when remembering only me and after I left the shore behind, I seemed to shrink and shrink till I was nothing but a flecky bubble and feared that the bubble would burst. And so I advise swimming as good to encourage the modesty of the soul.

There is nothing more democratic than swimming. Bathing is a society event but swimming out beyond the surf line is just plain social. Every one is happy and young and funny. No one argues. No one scolds. There is no time and no place where one may so companionably play the fool and not be called one.

I learn much from people in the way they meet the unknown of life, and water is a great test. If they come to it bravely they've gone far along the best way. I am sure no adventurer nor discoverer ever lived who could not swim. Swimming cultivates imagination; the man with the most is he who can swim his solitary course night or day and forget a black earth full of people that push.

This love of the unknown is the greatest of all the joys which swimming has for me. Though my swimming has earned me a goodly fortune I am still looking for my chest of gold in a cool dripping sea cave—though a professional mermaid for the movies I still wait to see my first real one sitting on a damp grey rock combing her long green hair.

CHAPTER III

SWIMMING A WOMAN'S SPORT

I BELIEVE swimming to be the best sport in the world for women. Swimming is a graceful art and women can swim more gracefully than men. What is more, they can swim with almost as much strength, and, at least in distance swims, very nearly equal men's records.

I am not trying to shut men out of swimming. There is enough water in the world for all of us. But as men can indulge in so many other sports where women make a poor showing or cannot compete at all, swimming may well be called the woman's sport.

I am not in favour of women's trying to ape men in athletic affairs. I am glad this sort of new woman is dying out. The present leaders of athletic sports for women fully recognise that a woman is a differently organised creature, and only makes herself ridiculous when she attempts to compete man-fashion in man's sports.

But a woman has the chance to appear in all

her gracefulness in swimming. The only sport that approaches it is skating. One can flounder in the water, of course, but to me swimming is the one sport that can be absolutely "feminine" and yet be efficient. Diving is a beautiful art for woman—that is, if a woman will learn how to handle herself when coming up out of the water. Many women divers fail here; they make a fine dive and then come up choking and fuming and kill the beauty of the sport.

Just to show you how much better chance a woman has in swimming than in most sports I have looked up the figures and find that in long distance swimming the women's world records come within 10 per cent. of equalling those of men! There are a few men particularly adapted to distance-swimming, who by sheer size and greater brute strength, will always surpass the best records of women, but comparing the average men and women who have had an equal amount of training I believe that the women swimmers will actually show superior endurance. This is illustrated by the fact that in my second swim-through-Paris race, in which I was entered with numbers of men and women swimmers, all of the women completed the course, whereas over 60 per cent. of the male swimmers dropped out

along the way. This seems to indicate (and I have observed it elsewhere) that women swimmers know how to husband their strength to better advantage. Men are more inclined to rush in with the riotous energy which they possess, and use themselves up in a short time. This power of the man makes him superior in the short distance swims, but even in the short-distance swimming, woman's records are still about 80 per cent. of man's, which is a better showing than she makes in any non-swimming athletic event. Thus in long distance running woman's record is only 78 per cent. of that of man, while in absolute strength events, such as in lifting, throwing weights, etc., her records are only 50 to 60 per cent. of those of man.

The poor showing that woman makes compared with man in feats requiring greater strength, is due to the fact that she is a small creature; much smaller than most of us realise. If a woman according to her size were muscled to exactly the same degree as a man she would still possess only 70 per cent. of his strength. But the average woman does not possess a proportionate amount of muscular tissue, because the round contour and beauty curves of a woman's body require a greater proportion of fatty tissue.

A man's muscles are firmer; a woman shows scarcely any muscles at all. A man is also much more liable to get a cramp than a woman, because a woman can stand the cold water much longer than a man.

This greater proportion of fatty tissue is of advantage to woman's swimming, in two ways; first, fat is of lower specific gravity and helps to keep her afloat; second, it prevents her being so easily chilled in the water. Of course, this latter advantage does not apply when she swims in petticoats.

I receive many inquiries from women who give me their measurements and a few records and ask if I think they should go in for professional swimming. The swimming records of course prove something, but the measurements and physique mean very little. In the first place, putting a tape around the body does not tell what that body can do. A woman might possess a set of measurements equal to that of another woman, and not be able to compete with her in athletic achievements, any more than a hippopotamus could compete with a race horse. It all depends on the kind of tissue beneath the tape measure.

Swimming is a matter of muscles; yet not whol-

ly of muscles. The ease and grace of movement, the fine balance and poise, especially for fancy diving, are matters of artistic skill to be acquired by training and practice; the rules for producing such expert work are very like those for producing an expert pianist. Some natural gifts and great perseverance are essential to reach the highest stages of the art, just as they are in piano playing. But to reach a moderate proficiency in the natatorial art, as in music, is a reasonable ambition and is attainable by a large percentage of women.

In so far as it is possible to designate the type of those who will succeed best, I should say that the best swimmers are men and women of moderate or somewhat in excess of moderate size. Their physiques are always well proportioned, though this is rather the effect than the cause of good swimming. Good swimmers are never excessively thin, but they may be moderately fat. Jabea Wolffe, an English champion, who made several good tries at the Channel, is a man who is pretty fat for athletic work and would hardly make a distinguished showing in any other sort of athletic event.

Many men who incline to be fat and still make good swimmers, are relatively no plumper than a

woman should be in order to be considered a well formed woman. This merely again proves my point that swimming is a woman's art, for it is certainly true that male swimmers have physiques more nearly resembling those of women than do any other class of male athletes.

Notice the pictures of male athletes and you will observe that the swimmers show the most uniformly developed physiques and the most symmetrical and well rounded forms. But look at a group of runners, pugilists or weight lifters and you will see most unbalanced and abnormal specimens. The world cares very little about the beauty of its men and hence this advantage of swimming over other sports does not apply to the male half of humanity. If women were to go in for the sports that men do it would indeed result in physical development that would be anything but pleasing or beautiful.

Now the effect of swimming upon the woman's physique is similar to its effect upon a man's, but in the case of woman such an influence on her physique is much more desirable.

Swimming will make the thin woman fat and the fat woman thin. Swimming increases muscular tissue in those who are poorly developed. And from nature's instinctive reaction to pro-

tect the body against the chill of the water swimming causes the development of the normal fatty layer needed to give the body smoothness.

But this desirable development of a rounded body is very different indeed from the unseemly accumulations of fat that occur from excessive eating and neglect of exercise. Swimming is an absolute cure for obesity, because it exercises the whole body and burns up the excessive fat. The motion of swimming is particularly effective in reducing the waistline, giving health and tone to the vital organs. This special development results from swimming in two ways; first, the very deep breathing caused by swimming exercises the diaphragm, and second, the abdominal muscles are used in pulling the legs forward. A woman particularly needs this development as walking in skirts prevents lifting her knees and giving these muscles proper exercise.

While woman as compared with man is endowed by nature with many advantages as a swimmer, Dame Society has bequeathed her serious handicaps. The bathing girl of our popular beaches only a few seasons ago wore shoes, stockings and bloomers, skirts, corsets and a dinky little cap; all she needed was a pair of rubbers and an umbrella and she could have gone

anywhere in any weather. But thank heaven in the last two or three years styles have become more sensible—and in my opinion more decent —though some prudes continue to call them indecent.

Not only in matters of swimming but in all forms of activity woman's natural development is seriously restricted and impaired by social customs and costumes and all sorts of prudish and Puritanical ideas. The girl child long before she is conscious of her sex, is continually reminded that she is a girl and therefore must forego many childhood activities.

As womanhood approaches these restrictions become even more severe and the young woman is corseted and gowned and thoroughly imbued with the idea that it is most unlady-like to be possessed of legs or to know how to use them. All of this pseudo-moral restriction discourages physical activity in woman, and yet she manages fairly well as a land-animal, and accommodates her steps to hampering petticoats with a fair degree of skill.

But when a woman enters the water clad in Madame Grundy's conventional wardrobe, she indeed invites troubles galore. Skirts or flowing robes are fairly feasible garments for walking,

and are used by a large majority of the world's population, both male and female. Such an enveloping garment hangs from the widened region of the hips, leaving the legs sufficient free play for the vertical motion of walking. But in swimming these conditions are radically changed. In walking the knees can be kept comparatively straight; in swimming the breast-stroke they are thrust sharply up toward the chest. Moreover water is seven hundred times as heavy as air, and to attempt to drag loose flowing cloth garments of any sort through water is like having the Biblical mill-stone around one's neck.

Many of my readers will think my attitude toward the skirted and belted bathing suit unnecessarily severe. To them I would say that they can at least reconcile their minds to the conventionalities by considering swimming garments to be in two distinct classes: the one sort we may call a bathing beach dress, and the other a true swimming costume. Much of the summer social life of the seaside resorts, consists in lounging about the beach with occasional splashing in the water. For this purpose—which is social rather than natatorial—it may be all very well to conform to the fashions of the beach and wear a dashing petticoat with slippers, cap and cape to match.

But where swimming is engaged in as a genuine sport and not as a mere excuse for social diversion the very best society permits and approves of the close fitting swimming tights, or of the two-piece suits commonly worn by men.

Perhaps you will say that in your locality the one-piece tights will not yet be tolerated. In that case get one-piece tights anyway and wear over the tights the lightest garment you can get. It should be a loose sleeveless garment hung from the shoulders. Never have a tight waist band. It is a hindrance. Also on beaches where stockings are enforced your one-piece undergarment should have feet, so that the separate stocking and its attendant garter is abolished.

There is no more reason why you should wear those awful water overcoats—those awkward, unnecessary, lumpy "bathing suits," than there is that you should wear lead chains. Heavy bathing suits have caused more deaths by drowning than cramps. I am certain that there isn't a single reason under the sun why everybody should not were light weight suits. Any one who persuades you to wear the heavy skirty kind is endangering your life.

The bathing suit problem might fairly be summarised in this way. There are two kinds of

bathing suits; those that are adapted for use in the water, and those that are unfit for use except on dry land. If you are going to swim, wear a water bathing suit. But if you are merely going to play on the beach, and pose for the camera fiends, you may safely wear the dry land variety.

So many women who would otherwise indulge in this most beneficial of all sports are prevented from doing so by the fear that they are going to ruin their complexions through exposure to wind and sun. This can be guarded against very simply. Before leaving your bath house, coat the face with a generous layer of cold cream. This protection prevents the painful and disfiguring sunburn. Aided by the cream your skin will remain unblemished while you are in the water. But if you don't want sunburn you must sit in the shade when not swimming.

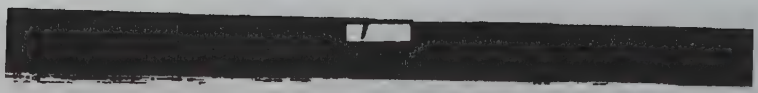
The eyes, too, should be well taken care of. I seldom attempt a long swim without goggles. These goggles are securely fastened to my eyes and to make doubly sure, they are sealed by an application of bear's grease, so that no water can reach them.

If you have trouble with water in the ears there are swimmers' earstops on the market which your druggist can secure for you. They are very

IDEAL BATHING SUIT FOR PUBLIC BEACHES WHERE SWIMMING TIGHTS ARE NOT PERMITTED.

JERSEY SWIMMING CAPE FOR GOING TO AND FROM THE WATER.

HEAD DRESS FOR THE SWIMMER. A RUBBER CAP BENEATH THE SILK "BANDANNA."



good. Please do not use cotton as a stopper, for that is highly dangerous. I try always to wear a rubber cap that will fit tightly about the ears, and if one does not do the trick, I wear two and sometimes three.

One reason why fewer women than men become proficient swimmers is because they do not want to wet their hair. With this end in view they try to keep their heads out of the water; this distorts balance and causes neck strain—both drawbacks to good swimming. I have always advised washing the hair in fresh water and borax immediately after coming out of a salt bath. A brisk rubbing of the scalp with a rough towel will dry the hair. Do not go around with your hair damp and dripping until it dries naturally. Wearing caps keeps the hair out of the eyes and protects it as much as possible.

Never forget to take with you a large box of talcum powder. This simple little adjunct is worth its weight in gold in a bath house. A great many women dislike bathing because they say it is hard to dress afterwards—their clothes "stick." All this is done away with by using talcum. Use it profusely, all over the body, and dressing after the bath will be a pleasure, instead of a task.

Indulgence in alcohol after a bath is the worst

possible thing. Of course in a case of heart exhaustion, or fainting, or any of the unusual things that may happen to a person unaccustomed to the water, alcohol might be used—but not for the mere chilly feeling that sometimes follows a bath. Exercise is the cure for that. Just three minutes of brisk moving around, running, jumping or simple callisthenics will cause the blood to circulate rapidly. Do not use alcohol except externally.

Every one knows that sparkling beauty must emanate from a healthy condition of the body. Fresh air, full play for the muscles and complete enjoyment of necessary exercise—all these aid in the establishment of health. And all these are to be found in swimming.

To swim successfully one must have complete control of the muscles. Not the indecisive control that most women have—but the certain knowledge that when a demand is put upon a particular muscle, that muscle is going to perform the task put up to it and not collapse before it is half through.

Control gives poise. And poise is the essence of all beauty. Why? Because it establishes dignity. And beside dignity the frail marks of superficial beauty are insignificant. With dig-

nity and poise there is always confidence, which, if not an essential asset to beauty, is at least a decided addition to character and an invaluable aid towards success.

Sallow skin is the penalty of possessing a sluggish liver. Swimming arouses the laziest liver from torpidity. Kidneys that become clogged with poisonous excretions cause dull, puffy eyes. Swimming stimulates the kidneys to strenuous action and helps carry away noxious impurities. Constipation, the universal foe to health and beauty and the cause of unsightly pimples and ugly blotches, is speedily cured by the continued exercises of the muscles of the abdomen that are most used in swimming.

As the list now stands, we credit swimming with poise and dignity, clear eye and an unmarked skin. But it does more. Swimming develops and beautifies a woman's arms without producing knobby muscles and an inclination to masculinity. On the contrary, it results in a rounded, tapering effect. It develops the arch of the chest, it fills in hollow necks and reduces and makes firm flabby breasts. By the continued pull on the muscles around the waistline it removes the ugly rolls of flesh and puts in their place a

smooth firm tissue—that allows of at least one size smaller corset being worn.

Some sports require the abnormal development of certain sets of muscles only, while other parts of the body may remain in an indifferent condition. Not so with swimming. This is a sport that calls for the even, symmetrical development of every part of the body, for it calls on every muscle in the body and demands that it be ready to meet the last tax upon its resources—and yet paradoxical as it may seem swimming is the one sport in which a lame man may excel.

Swimming is superior to any other gymnastic exercise because all parts of the body are brought into vigorous action without danger of straining individual groups of muscles and tendons. The swimmer never suffers from muscle soreness even when not trained.

All movements taught in physical culture are used in the breast-stroke. The arm motion is practically the same as that used in artificial respiration, therefore it expands the lungs. The ocean is worth more to womankind than any serum produced in any million dollar laboratory, or all the beauty specialists on Fifth Avenue. And there is nothing better for the complexion. It takes away what the corpulent don't want and

gives to the thin exactly what they do want. It is the one sport in which women are not at a disadvantage with the stronger sex. And I feel that I have a right to speak thus for I know that the sea has brought me from a little lame child to the woman I am to-day.

There was a little girl in California whom the physicians had given up to die. Nothing could be done but to wait and she was carried down to one of those long sunny beaches beside the Pacific. Here she would lie on the sand all day long and watch the people swimming out to sea. One day she asked her father to teach her to swim. He hesitated, thinking she could never do it, and then finally yielded to her begging. She learned in two days, in one month regained perfect health and a year from that time was known all over California as Dorothy Becker, the Champion Mermaid of Sacramento.

For the woman who swelters in her kitchen or lolls in a drawing room, for the man who sits half his life in an office chair, an occasional swim does as much good as a six months' vacation. That weary feeling goes away for once in the cool, quiet water. Tired men and tired women forget that stocks and cakes have fallen.

PART II

EASY LESSONS FOR BEGINNERS

PART II: EASY LESSONS FOR BEGINNERS

CHAPTER IV

PRELIMINARY DRY LAND EXERCISES

ONE cannot learn to swim on dry land, but one may learn to swim more quickly and perhaps also to swim better with the aid of a preliminary course of dry land swimming exercises. The object of such preliminary exercise is not only to accustom the muscles to the swimming movements, but it is also for the purpose of training the mind and making the swimming movements automatic.

When one enters the water there are so many new experiences forced on the attention at once that they may quite rob one of self-possession. There is the strange, cold, wet feeling of the water, the queer sensation of being without support, the fear of strangling, the fear of sinking, and often worse than all these, the consciousness that one is being gazed at by unsympathetic specta-

tors—all of which make it very difficult to apply the mind to the mastery of new untried motions.

If these new swimming motions be first properly learned in the privacy of your room your progress will be greatly enhanced and the time spent well repaid. Moreover the swimming season is so short for most of you that there is a distinct advantage when the season does open in being prepared to learn to swim without further waste of time.

The swimming stroke that I will first teach you is known as the breast-stroke. It is the old standard swimming stroke that has been known for centuries, and must not be confused with any of the latest racing strokes which may be in vogue among professional swimmers of your acquaintance. We will take up all these various swimming strokes in due time, but I insist that, for a woman at least, the breast-stroke is the fundamental basis of swimming for gracefulness and for endurance. I heartily disapprove of the prevalent fad of teaching beginners to swim dog-fashion, or the crawl stroke which is but a modification of the small boy's dog-paddle. These strokes may be "natural," but they are decidedly ungraceful. If some ardent friend argues for these swimming strokes, you might answer him

by advocating that he allow his children to adopt "natural table manners."

My observation of those recently taught swimmers who have followed the fad of learning the crawl first, is that they have much greater difficulty later in becoming artistic swimmers. The crawl is a stroke for the expert swimmer, not for the beginner. It is certainly not a graceful stroke. Its object is speed rather than grace. To me swimming is nothing if it is not graceful; yet far less than half of the swimmers are graceful in the water. This is because they have not had the proper preliminary instruction as a foundation for their swimming education.

The breast-stroke, being the simplest and most easily learned of all the various strokes, is the logical stroke for the beginner, and this can be learned almost as well in your bedroom as in the water. Women and girls who desire to learn the crawl may do so later, but they should certainly never attempt it till they have learned to take care of themselves in the water, and have acquired an ease and fearlessness that is the foundation of grace.

One of the most delightful sights that I have ever seen was the Australian school children receiving their first lessons in swimming. The

teaching of swimming is compulsory in the Australian schools, which is the reason we have so many good swimmers—or rather so few poor swimmers—in Australia. Swimming should be adopted as a part of the curriculum of American public schools and every school house should have its swimming pool.

These Australian children are taken to the beach, where the youngster after donning a bathing suit builds for himself a sand mound of the size and height to support the trunk of the body, leaving the arms and legs free for the swimming motions. A bevy of these happy youngsters sprawling over the beach is a pleasing and novel sight.

What the Australian youngsters are taught on their sand mounds you can teach yourself in your room.

You will need the following articles:

1. A piano stool, or some box strong enough to sustain your weight.

2. A kitchen chair.

3. A one-piece bathing suit or equally free garment to wear while going through the exercises.

4. A cushion or pillow.

Place the piano stool or box in the centre of

the room and lay the cushion on top of it. Then place the chair directly behind it, but a short distance removed. Lay yourself so that your stomach is on the stool or box and your feet on the chair.

Keep your chest clear of the stool. That part of your body commencing where your ninth rib rests should just clear the edge of the stool.

Now place your hands in front and on a level with your chest, palms downward and hands side by side. Do not place your hands in the usual attitude of prayer. This old method of starting the breast-stroke is wrong, as it means useless movement. Keep your hands flat like paddles. Do not open the fingers. Now push the hands forward and stretch them straight out as far as you can. Keep them on a level with the chin, the palms down. Raise your head a trifle so as to clear the imaginary water.

Turn your hands until the palms are facing outward, then as if ploughing the water bring them back in a wide circle. Do not sweep them clear back to your hips, as this last part of the stroke is less efficient. While you are drawing the hands back, inhale a deep breath.

Next bend the elbow and, keeping the hands flat so as to cut the water, bring them back to

their original position under the chin, whence they again shoot forward.

Continue this movement until you are able to do it with perfect ease. Should this exercise make your muscles ache and become stiff, a few movements in physical culture will soon make them right again.

Of course you understand that all of these exercises are to be done with little or no clothing. The one-piece bathing suit is sufficient. Your body must be free and cannot be if you wear many of the senseless garments with which we human beings are afflicted.

Assume the same position as that used for the arm stroke. You have your box or piano stool, but before beginning remove the chair on which your legs have been resting.

Grip the side of the stool or box on which you are lying and obtain a perfect balance. Then stretch your legs straight back. Keep them as straight as an arrow and try to point the toes and keep them pointed. Otherwise they will retard your movements when you are in the water.

Now bring your legs up towards the body. Keep your feet together, but open the legs at the knees. Bring your feet up in this manner as far as you can and then kick out straight back

from the knees, spreading the feet apart until the legs are opened V-fashion. Then snap your feet together to the first position. This complete movement is known as the frog-kick.

As you pull your feet forward toward the body, keep the toes extended as when standing on tip toe. But as you kick back present the flat sole of the foot squarely to the water, offering a broad surface. The back kick is made more quickly than the return. The snapping together of the extended legs is a distinct part of the stroke. It forms a wedge of water that is squeezed out and this pushes the body forward as a rocket is shot up by the outrush of burning gases.

Continue this movement until you understand it perfectly and meanwhile try to picture this movement in your mind. Note that when your feet are kicking back, you are kicking yourself forward.

Keep at these two exercises—the breast-stroke and the frog-kick—until you have mastered them perfectly. Try to become as familiar with the two strokes as you are with walking.

When you know these movements as you know the movements in walking, you are more than half through your lessons and you are now almost

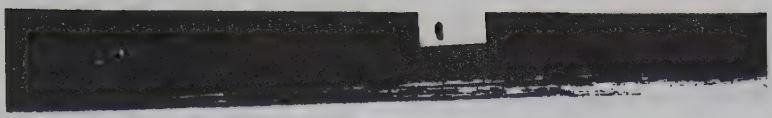
ready to swim. In addition you are on the road to perfection in swimming.

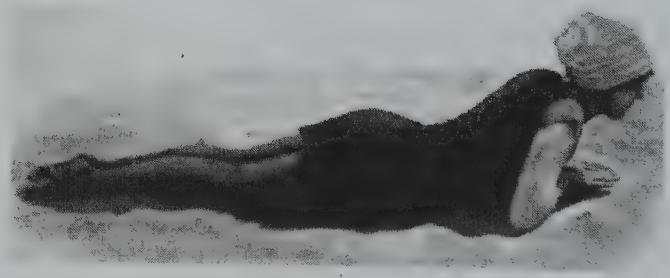
Do not try to master these movements in a few minutes, but practise them many times at intervals.

When you have learned the breast-stroke and leg strokes, the two first essentials in swimming, you are ready to combine these two movements. Don't be in a hurry about this. You should first of all become proficient at the two strokes, done separately, before you try to combine them.

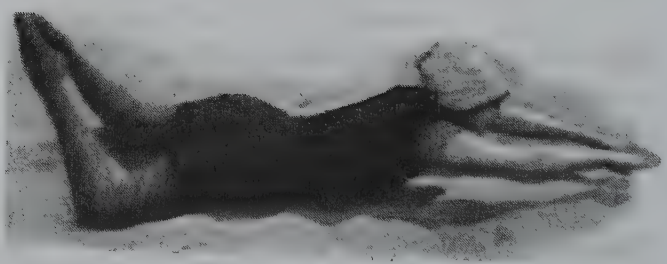
It will be very easy for you to combine the movements if you will remember that as the hands shoot out straight ahead, simultaneously with this movement, the legs are drawn up and as the hands turn and plough the water, the legs are kicked away from the body.

The above is the simplest rule for combining arm and leg stroke but there is a slight modification of it that may be of use to know now as it will tend to prevent your stroke becoming too quick and jerky. By this method you will shoot the arms out in front of the chin as the legs are drawn up beneath the body. Now hold the hands outstretched and slightly turned up as the legs kick vigorously back. The hands now act as planes to raise the body up. As the feet drive





THE START OF THE BREAST STROKE AS POSED ON THE BEACH.



THE SECOND POSITION IN THE BREAST STROKE.

it forward the hands may remain outstretched so for not more than a second and then as they spread out legs are snapped together, the arms drive vigorously back, these two motions giving the body sufficient impetus to keep it going and afloat as the arms and feet are again drawn forward.

You are now ready to note your breathing in its relation to your stroke. In the actual swimming, your breath should be taken in at each stroke when the head is the highest in the water. This will be just as often as the legs kick back and while the arms are still sweeping back. Take the breath in quickly and through the mouth. Then hold it for a second as the hands are doubling up under the chest and breathe out as the hands shoot forward from the chin.

Note that the lungs are most fully inflated at that part of the stroke when there is the least support given the body from the muscular action, when the buoyancy of the expanded lungs is of the most service. If the breathing is reversed so that the weakest part of the stroke coincides with the emptiest condition of the lungs, the result will be an ungraceful up and down motion of the body and greater submergence of the feet.

The advice to breathe in through the mouth

may surprise you as you have always been advised to use that organ for eating and talking and the nose for breathing. But swimming is the exception that proves the rule.

There are four good reasons for this. In the first place swimming is tremendous oxygen consuming exercise and in fast swimming one can hardly take in the air fast enough through the nose. Second, in swimming in rough water one wants to take the air in quickly to lessen the danger of breathing in water from a passing wavelet or when the face is submerged, as it will be if you should later learn the crawl stroke. Third, one is not so sensitive to a little water accidentally taken into the mouth as he would be if the same water were taken into the nasal passage. The fourth reason for quick taking in and slow expulsion of the air is that it tends to increase the volume of air that is retained in the lungs and renders one less apt to sink, which might happen should one suddenly expel a large volume of air while too much of the body was held above the surface of the water.

To be able to swim well, and without becoming easily fatigued, every part of the body should be evenly developed. The beginner is apt to experience a weakness, and perhaps a little soreness

of the abdominal muscles, after practising the movements of the breast-stroke in the manner already shown. This is because the abdominal muscles are usually undeveloped in those who are not professional athletes.

In such cases, the following exercises, taken systematically, will be found beneficial:

1. Lie flat on the floor. Raise the left leg, bending the knee until the lower leg is at a right angle with the thigh. Then lower the leg without bending the knee. Repeat the movement with the right leg, and alternate with both legs till you are tired. Five or six times will be sufficient at first, but the number should be gradually increased to twenty.

2. Raise both legs together and lower them. Do this ten to twenty times.

3. Control your breathing. Inhale slowly through the nose. You are to use the mouth inhalation only with the actual swimming stroke.

4. Stand up, and continue the breathing exercise for three to five minutes, filling your lungs to their utmost capacity. I cannot too strongly impress upon you the importance of deep, full breathing, both for its own sake and in conjunction with swimming.

Don't be afraid of spending too much time in

acquiring the breast-stroke. Just remember that the movements of this stroke are the foundation of all swimming, in the same sense that the multiplication table is the foundation of arithmetic. When this stroke is thoroughly mastered all other swimming movements will be learned with comparative ease.

You will need patience. An easy mastery of the movements of swimming is not to be acquired in a few minutes. At least a half hour each day should be devoted to the preliminary exercises, for the purpose of fixing the movements in your mind so thoroughly that they become easy and natural, and for the purpose of securing that perfect muscular co-ordination which is the true secret of swimming, as it is of all other athletic activities.

During these indoor exercises all windows in the room should be wide open. Half of the physical benefit of any exercise is due to the qualities of fresh air with its life-giving oxygen, which is forced into the lungs. The athlete should live mainly on fresh air. Especially is this the case during exercise, because when the body is being vigorously exercised it demands more oxygen.

Fear of the water will be your chief hindrance

in learning how to swim. You fear the water chiefly because you do not know the swimmer's way of breathing. No matter how much pains you have taken with other breathing exercises, you will find that before you can become a good swimmer you must entirely relearn your breathing habits.

The act of swimming will demand a voluminous and rapid intake of air. The scientists tell us that for every unit of air taken in by the body at rest, the body in standing requires one and one-half units; in walking, three units; but in swimming the consumption is four and one-fourth times that of the minimum requirements when the muscles are at rest! The increased quantity of air demanded by the swimmer is to be secured, not so much by breathing more frequently, as by breathing more deeply. The lungs must be well inflated, and the swimmer should learn to inhale this greater volume of air quickly. The exhalation is slower.

Because the swimmer should at all times be prepared for the unintended submerging of the face, you would do well to prepare for your first swimming experiences by familiarising yourself with the actual breathing experience of the swimmer. A bathtub or other vessel of water in which

you can plunge your face, will serve the purpose. Try submerging the face and learn to hold the breath under water for a reasonable length of time. There is no occasion for you to try to break records in holding your breath, as the ability to hold the breath under water for thirty seconds will serve your immediate purpose.

First become accustomed to holding your face under water, then learn to take in a full breath, plunge the face beneath the water, and slowly expel the air. Learn to breathe out under water in this fashion, both through the nose and through the mouth. After you have learned this, then try breathing in the fashion required by the crawl stroke.

It makes no difference whether you intend to use this stroke or not. Familiarity with this method of breathing out with the face under water, will do much to decrease your nervousness and fear when you actually begin to swim. In the crawl stroke, the face is submerged most of the time, but at a certain period in each stroke the head is turned sideways to free the mouth, and a quick breath is inhaled and then slowly expelled through the nose. Practise this until you have become quite accustomed to it and are no longer in danger of breathing in at the wrong time.

Another preliminary feat that you may master before your début as a swimmer, is the ability to open your eyes and keep them open under water. Clear water will at first cause a slight smarting of both the nasal passages and the inner side of the eyelids, but it is perfectly harmless, and one soon learns not to notice this slight discomfort. Do not try to bat your eyes on the surface of the water. Plunge your face well into the tub, then open the eyes and keep them open. In good light the swimmer can see well enough under water to guide his course. No one has mastered the aquatic element until he has learned to see as the fishes do.

Perhaps these preparatory tricks and exercises may seem to you a bit childish, but they will serve to accustom the mind to the experiences that will be yours when you attempt to swim. This preliminary education will not only save you much time in mastering the art, but it may save you some embarrassment and be to you a great source of satisfaction by making it appear that you are an apt beginner and can master swimming without the exhibition of those silly fears and awkward actions which otherwise may accompany your first appearance in the water.

As a little variation from the less comfortable

exercises on the box or stool, I recommend the practicing of the arm stroke before a mirror. The mirror should reach to the floor, as you will stoop over until the upper portion of the body is almost horizontal. You can then bend the neck back sharply so as to look before you, just as you would do when swimming. A cord stretched across the mirror at the proper height may indicate for you the surface of the water, so that you can see just how your arms will appear in relation to the head and shoulders. The difficulty with this exercise is that the legs cannot be used, as they are not in their normal swimming position.

Where large bodies of Australian school children are given their preliminary swimming exercises, they are frequently drilled standing on one foot, using the arm stroke with the stroke of the leg that is free. Another position which can be used to gain the sense of relation of the leg and arm stroke is to lie face upward on a couch. None of these positions is as good as the one I have first described, and should not be resorted to if you can rig up a proper support for the stroke as practised in the illustrations, and find yourself able to handle the body in this position.

Not only the beginner, but the swimmer who

has no opportunities of keeping up his sport during the long winter months, will be interested in the type of exercises other than swimming that are taken to keep the swimmer in training.

Swimming is truly the superior exercise to train for swimming; more so than is the case in any other sport. The boxer must take his long walks to give him endurance and build up his leg muscles, etc. When the facilities have not been afforded me to pursue my long-distance swims, rather than churn about for hours in a stuffy little indoor pool, I have kept up my endurance by long walks, often as much as twenty-five miles at a stretch.

For keeping the upper portion of the body in condition, there is nothing superior to swinging Indian clubs, which was an essential part of my father's early programme which resulted in my winning all-around swimming championships. Club swinging has a sense of musical rhythm, much like the swimming stroke, and is indeed a very splendid and graceful exercise which I heartily recommend to all swimmers.

More recently, since I am less often engaged in long-distance swimming and am cultivating the more dramatic aspects of the aquatic art, I have adopted a daily programme involving, in

addition to my aquatic performances, regular work in both fancy skating and classic dancing. Other swimmers have warned me that dancing would affect my work as a swimmer and would destroy the symmetry of my bodily development. I think, however, that this is largely superstition and that the reason the dancer's calf-muscles appear abnormally developed is due not so much to an excess here, as to lack of development elsewhere. When one has the arms, chest and trunk well developed, the leg development of the dancer will not seem excessive.

CHAPTER V

EARLY EXPERIENCES IN THE WATER

IN this part of my book I address myself particularly to the woman reader. This does not mean that these instructions on how to learn to swim are any less appropriate for the boy or man who needs such instruction, but the opportunities open for women to learn to swim are so much poorer than for men that some of the advice given to women will not be needed by the male swimmer. For a place, he has all out-of-doors, whereas swimming waters that may be utilised by women are much more difficult to find.

The ideal place for the girl or woman to learn to swim is the place where she will be the least embarrassed and the least afraid. Her fears, whether inspired by deep and dangerous waters, or by the presence of unsympathetic onlookers, will be equal trouble makers.

As for the water, one essential is that it be at a comfortable temperature. The beginner will not be able to think much about swimming

strokes if her teeth are chattering. But warm water is not everywhere available and while you may not warm the water you may do something towards increasing your ability to withstand cold water. If your regular baths have always been taken in warm water, the shock of cold water on the skin will be much more discomforting than it should be to one in vigorous health. Cold water is a tonic and health-builder; and once you have learned to like it the reaction from the cold shower or splash-bath or even the quick plunge is not only beneficial but delightful, provided the body reacts to the stimulating shock of the quick change in temperature.

Don't go swimming on a cold, raw day, even if the water seems warm. To attempt to swim in cold water or to stay in cold water or remain in wet clothes on the beach until the teeth chatter and the skin is blue is the height of folly. Don't go into the water unless the body is thoroughly warm. The quick splash of cold water where the blood reaction brings a warm and ruddy glow to the skin is one of the essential elements in the programme of building vital health and power; but not so the prolonged chill in cold water until the teeth chatter.

Water at a temperature of from seventy to

eighty degrees is usually best for beginners. Water at lower temperatures down to as low as sixty is feasible for the vigorous, experienced swimmer. Many of the indoor pools, particularly those devoted to the teaching of swimming, are warmed to seventy-five or eighty degrees. If water can be had at this temperature, it will facilitate learning. If cooler water must be used you should plan in your early experiences to stay in only a short time, even if it is necessary to go in more often.

The most convenient depth of water for learning to swim is about four feet. Shallower depths than this are likely to be sources of annoyance as one is tempted to put the feet down too frequently. However, under necessity, one may learn to swim in any water where the stroke of the hands does not touch bottom. When the water is more than four feet deep, it is usually discouraging for the beginner, unless she is to be constantly accompanied by an expert swimmer and instructor. Where such instruction is given, and proper supports are provided, it is quite practical to learn to swim in water over one's head.

There is little to be gained by prolonging the stay in the water. For the first lesson, fifteen

minutes is long enough. This time should gradually be increased until the period is thirty minutes. This applies to active swimming work. Whether one may stay longer in the water as a matter of recreation all depends on the temperature. When there is a tendency to become chilled, efforts to increase the length of the stay will do more harm than good.

The choice of location will depend somewhat upon the sort of assistance, human or mechanical, that you are to have in your earlier efforts in the water.

Occasionally you will hear statements that you should avoid the use of artificial aids or supports in learning to swim. These statements are very foolish, as you cannot swim until you learn and you therefore must have support of some sort. This support may be the aid of an instructor or assistant. If you are to be assisted by a companion in the water let your assistant stand in front and give support to your chin. This will keep your mouth and nose from being plunged under water, and relieve you from your fears of having your breath cut off. If you have properly prepared yourself by the preliminary land exercises, there is no occasion to be held up bodily by an instructor or assistant.

An excellent way to learn to swim, if you have the co-operation of an experienced swimmer to handle it, is a loose belt which should pass around the body on the lower part of the chest. To this belt a cord or rope is attached, which may in turn be attached to the end of a stick to be held over the side of the pool or from a boat. This plan gives you perfect freedom of action of the hands. The person who holds the stick should show both consideration and skill or you will still fear a ducking, which will interfere with your giving your mind freely to your work. The swimming belt with the cord support is most frequently used by professional instructors doing individual teaching. With this device the instructor is free to watch your movements and criticise your stroke. He can also ease up on the cord to allow you to support yourself as fully as the effectiveness of your stroke permits.

A still more convenient method of supporting the pupil is in use in some of the pools which make a specialty of catering to beginners. This consists of a tightly stretched wire across the pool. On the wire runs a little trolley from which a cord descends to attach to the swimmer's belt. If a long coil spring or heavy elastic forms part

of this suspending cord it will result in the body being given an upward pull at all points and avoid trouble from slight sagging of the cable. If the length of this cord is adjustable it can be let out as the pupil becomes proficient and thus the pupil change from supported to non-supported swimming so gradually that no change will be noted.

But for those who have neither such apparatus nor the aid of an instructor the artificial float is a simple method of gaining support while getting accustomed to the water and bringing the stroke to a swimming efficiency.

The only objection to the use of a support in learning to swim is that you may use it too long and in this way adapt a stroke, the force of which is chiefly expended in driving you forward in the water without reference to support, so that when the wings are removed the ability to swim seems to have disappeared also. The pupil should make frequent trials in shallow water without the wings and discard them entirely as soon as he finds he can swim without their assistance.

Before you try to swim, I want you to prove to yourself how difficult it is to sink. This little experiment will do wonders to increase your con-

A LONG-SLEEVED SWIMMING JERSEY OR SWEATER.

fidence and remove your fears. It will teach you by your own experience far more effectively than any one can do in a book that it is not sinking you have to fear but merely your fear of sinking, and the awkward struggles that such fear leads to.

I claim no originality for this trick as it was recommended by no other than Benjamin Franklin. Dr. Franklin wrote to a friend an oft-quoted letter of advice on swimming in which he recommends conquering fear of the water by the assistance of an egg. Though Franklin omitted this detail, it would be necessary to have a fresh egg, as the egg experts tell us that the cold storage variety will not sink. Franklin advised his friend to wade out into the water till it reached his armpits and turn and face the shore and toss his egg a few feet in front of him. "Now," said Franklin, "try to get that egg."

Of course there is no particular potency in the egg. Any white object that will sink in water will do equally well. This experiment assumes that the water is clear enough to enable you to see such an object on the bottom. You can begin this experiment by easy stages. First, you may drop the object in water that is just a trifle deeper than you can reach with your arms. Then

try water a little deeper so that the head and shoulders must be submerged and you will observe increasing difficulty in reaching to the bottom to pick up the object. In fact, as soon as the depth becomes such that stooping over to reach the bottom with the hand causes the entire disappearance of your body beneath the water, you will find that this action will lift you off your feet, and you will be unable to reach the object without the aid of a swimming stroke to cause you to descend. If you have taken the breathing exercises recommended in the last chapter all this experience is perfectly safe and feasible in water as deep as your armpits—even though you cannot yet actually swim.

Now you have learned that you cannot sink except by an effort. This effort may be the momentum that carries you down when you jump into the water, or it may be the intentional stroke, as when you have learned to dive down while swimming, or it may be the blind actions of a frantic struggle, where the strokes by chance are those that take you down rather than those that hold you up. Early in your water experiences you may be inclined to doubt these statements, but if you will observe, you will find that the occasional sinkings of your head under water are

due to the fact that you have attempted to raise it too high above the water, so that this extra weight temporarily forces you down by the same principle that you sink when jumping in from a height.

These experiences in trying deliberately to sink will further show you that the human body floats by a small margin. You can illustrate this and get a very clear demonstration of just how the human body acts in the water if you will take a bottle and fill it just sufficiently full of water so that when thrown into a tub it floats with just the cork projecting above the surface. Try dropping in such a bottle from a height or raising it part of its own length out of the water and dropping it back. You will see that it sinks; but it invariably comes up again and floats with but a small portion of its bulk thrust above the surface, unless force is applied to keep it down. Such is the action of the human body in water.

Position in swimming is highly important and its purpose is to keep the body so that the small portion that floats above the surface will be the face, in order that we may breathe and see. The swimming stroke adds to the buoyancy of the body with but a slight part of its force. Its

main object is to drive one forward through the water.

You are now ready to make your first actual try at swimming, and proper position is the first thing to master. For the breast-stroke the body should lie so nearly horizontal that the feet when straightened will be within about eighteen inches of the surface. The head should be lowered until the chin is in the water and there is just room to open the mouth in breathing. Do not try to raise the head higher. It is needless waste of effort, for every inch that you raise your head above water greatly adds to the difficulty in swimming. Only the powerful and finished swimmer can swim with the head and shoulders thrust up boldly, as many a beginner seems to think essential.

This horizontal position of the body with the feet lowered about eighteen inches is essential for efficient swimming, because it offers far less resistance to forward progress than would be the case if the feet were lowered. On the other hand, the slight angle from the horizontal gives a lifting effect like that of the wings of an aeroplane or the vanes of a hydroplane. When the body is driven forward by either arm or leg stroke this proper angle from the horizontal

causes the body to lift out of the water, due to this planing effect. The head is thus kept up and the face free.

If you have perfectly mastered the complete swimming stroke by the land exercises there is no reason why you should not begin to swim almost at once. But if this preliminary work has been insufficient and the changed conditions of being in the water cause you to forget some of the training, it will be best for you to begin all over and readapt yourself to the strokes in the water.

Begin with the arm stroke just as I instructed for the dry land exercise. As you are to have support by the assistant or a float there is no occasion to put strenuous efforts into this stroke, or to expect actual swimming before you have accustomed yourself to the action in the water. Take your time; perform each stroke slowly, fully and gracefully.

Practise for a while with the arm stroke, then practise with the leg stroke. Carefully keep watch of the angle of the body in the water, and neither let it sink down towards a vertical position nor allow your feet to kick up and make a splash on the surface.

Before your attempt to combine the arm and

leg stroke, I want you to note carefully the feeling of resistance that the water offers to the stroke. It is this sense of push or resistance that one feels that measures the power and efficiency of the stroke. Convince yourself of the importance of this experiment first by driving the hand through the water edgewise, and second by driving the hand with the fingers open and comparing the resistance to the hand properly closed and cupped against the water.

You will also note that the resistance is very much greater with a rapid stroke than with a slow one. Hence, while it is necessary to take your time so that you will perform the motions completely, yet by observing the feeling of resistance, you will have practical demonstrations of the portion of the stroke that must be performed vigorously in order to gain its full power. To note the resistance of the flat palm of the hand is very easy; the feet are not so sensitive, but it is equally important that the soles of the feet be driven flat against the water. Note the difference in the power of the stroke when the feet are properly held to drive the water backward with the flat sole, as compared with the backstroke with the foot stretched out to point through the water, toes first. But on the return

stroke, as you draw the legs up, you can also note the difference in resistance, and if the toes are then bent up sharply toward the knee, you will feel the drag through the water. This resistance in the recovery is highly undesirable as it tends to drag you back. In both arm and leg stroke you must feel the water powerfully driven back with your stroke but the recovery of the arms and legs to the first position must be easy and with hands and feet in such a position as to offer the least resistance to the water.

The main point in completing the stroke by a combination of the legs and arms is avoid being in a hurry. Complete an arm stroke, then rest and think what you are doing, and make a complete leg stroke. Such separate and distinct action will not support you, but as you have artificial support, you are not yet swimming, and it is far better to spend sufficient time with the artificial support while learning to combine the strokes perfectly, than immediately to start swimming, with an incomplete stroke. You will gradually adjust the mind to working the arm and leg stroke together in their exact and proper sequence as you were instructed to do in the dry land exercise.

Practise this completed stroke with the float

or other support until you become quite at ease.

If you now discard your artificial support and start to swim you are likely to suffer some little discouragement. An occasional misstroke may throw your face beneath the surface, may cause you to get an unwelcome mouthful of water. The sudden plunge of the face beneath the water is an emergency that the swimmer must be ready to meet at any moment; hence, equally essential with the position and the stroke is the instinctive habit of inhaling only when the face is above the surface. So first master your stroke with the support and then, while still having the support to rely on, put yourself through a series of face duckings, taking in the breath, swimmer-fashion, as you were told to do in the tub, with the face beneath the water.

For your first effort at swimming after discarding your artificial support choose one of two locations; either water from three to four feet deep where you can let down and touch bottom with the feet if you feel it to be necessary, or choose a position where there is some solid object to grasp, near the surface of the water. This latter plan is preferable. Choose a position a few feet in front of the object to be reached, either by wading or with some assistance. Now

thrust out vigorously toward your destination and think only of reaching it.

This plan offers a great mental advantage over an effort to swim in open water with no particular destination. To reach a solid object a few feet off seems an easy attempt. You have confidence that you can do it, and hence fear and timidity do not enter in to weaken and disturb your action. Once you have swam, if only a couple of strokes, you have learned to swim. Further progress in the art is only a matter of increasing the distance. Start a little further back each time and you will be surprised to note how rapidly your power and your confidence will grow.

This simple plan of setting for yourself a definite task to be done and doing it and then increasing the difficulty of that task by easy stages, is a fundamental principle of efficiency.

And now you are wondering how rapidly this progress may be made. I wish that I could state definitely, but there are so many different elements entering into your mastery of swimming that no rule will apply. With first class preliminary exercises and a calm disposition many pupils succeed when taking their first lesson in the

water. Others may require two, five or ten lessons.

The ease or difficulty with which you may learn offers little indication of the type of swimmer you will be. I have taught many pupils to swim in one or two lessons, and some of them cannot swim much better now than they could with their second lesson. As for myself, it took me eighteen lessons to learn to swim, which fact I hope will not be without its encouragement to those of you who do not make a success of it the first day.

For any one who is seriously trying to learn to swim, conscientious work in the water from twenty to thirty minutes a day should be sufficient to make a fairly good swimmer in three weeks' time, but if one goes to the beach merely for social pleasure, she may never learn to swim at all.

Rough handling and duckings with those not yet accustomed to the water are both cruel and stupid. Part of my own childish fear of the water and difficulty in learning to swim were caused by the smart procedure of being "ducked" by thoughtless companions. No amount of reasoning can overcome the instinctive horror and fear that results from such an experience, and while often administered by stupid people with the

view of accustoming one to the water, it has exactly the opposite effect. Children should receive instruction in swimming from a kind-hearted instructor, and not from a village bully. The idea of throwing people into the water to teach them to swim is merely one of the commonly accepted stupidities with which the folk lore of humanity is filled.

As for your own early efforts, learn to handle yourself freely and easily, both on and under the water, but do not attempt any freak stunts, and especially no diving, until you have become a fairly good swimmer. You can learn to dive while swimming; that is, to swim under the surface of the water, fairly early in your swimming experience, but diving from any height above the water should be reserved until the swimming abilities are well developed. This is necessary, because the more inexperienced the diver, the deeper must the water be. It is decidedly unpleasant and very dangerous to strike one's head on either the cement floor of a pool, or the muddy bottom of a stream.

The lighter the clothing you wear in learning to swim, the more rapid will your progress be. For this reason there is a practical advantage in learning to swim in a pool open only to women,

where you are permitted to wear a swimming suit without a skirt. For social swimming on the public beach you may have to compromise with the conventional custom of the place and season. But on all occasions make your costume as light as feasible.

A child of five is not too young to learn to swim. In fact, any one from five to eighty-five can learn to swim, although from ten to fourteen is the most teachable age.

The quickest learner I have come across was a man of thirty-five. He was going on a risky water voyage, and therefore thought it necessary to learn swimming quickly. After practising leg and arm movements separately on shore, he asked to try both together in the water, and immediately swam ten yards. The failure of the old formula to throw the boy overboard is due to the destruction of confidence in both self, teacher and water. Before the child can swim, he must prove to himself that the water is worthy of trust.

Take the child to some quiet place where the water is still and there is no audience on the shore. Interest him as much as you can by telling him how much fun it is, how the animals swim and point out what he is missing. Then persuade him

to begin by learning in a businesslike way. Let him first wade out to the limit of his depth. Let him take plenty of time to get used to the coolness, and pressure on his lungs. Let him splash around all he wants. It's fun and helps acquaint him with the weight and resistance of the water. Tell him to wet face and hair and finally to put his head under the surface in order to accustom himself to hold his breath, to disregard the roaring in his ears and to open his eyes wide under the water. These are quickly learned and are necessary experiences for the beginner.

Now give him a float only large enough to support him as long as he rests only his hands on it and keeps the body well submerged. Let him jump around with this float all he wishes. In this way, he'll soon find that the water will all but hold him up and that his dependence upon the board need not be very great. Right here comes the first important bit of knowledge that will make him a swimmer quickly. Teach him that the less he exposes arms and body above the surface, the easier it is to keep afloat and the more he raises his head and arms in the air, the more quickly he will sink.

You are now ready for him to try kicking his feet to the surface while holding to the board

with his hands, and while you put your arms beneath his thighs to help. He will not need much help after a trial or two when he gets used to the sensation of depending on his own hands. Both teacher and pupil need infinite patience. I know of a child who could swim only ten yards after eighty-four lessons, and also of one who swam five yards after one lesson.

CHAPTER VI

SIMPLE STROKES TO BE MASTERED FIRST

WHEN you have learned to swim the breast-stroke for a few yards you are ready to take up certain other easy water accomplishments which will be of immediate use to you in the process of developing and increasing your swimming abilities. The normal order in which you should master the simpler swimming strokes is as follows: First—Swimming with the breast-stroke. Second—Floating on the back. Third—Swimming on the back. Fourth—Treading water (which is merely another position for floating). Fifth—Swimming on the side, with underarm stroke. Sixth—Swimming on the side, with the overarm stroke.

The above is a list of strokes that practically every swimmer knows. After you have learned some of the more easy ones, you may wonder why I insisted that you learn the breast-stroke first. The answer is that the breast-stroke is the basis of artistic and graceful swimming, and it

is the easiest stroke that you can use with your head in a position to see where you are going. The breast-stroke also gives you the position for the trudgeon or double overarm, which you will be taught in Chapter Eight, and which is the most graceful of the expert strokes used for speed swimming. Moreover, the frog-kick of the breast-stroke is the only movement out of which one gets the full force of the powerful leg-muscles; therefore the stroke is less wearing on the arm muscles, and for that reason is excellent for endurance. The frog-kick of the breast-stroke is the essential driving power in swimming on the back. By alternating the breast-stroke and swimming on the back, the average individual can keep going for a longer time than by any other means. So stick to your breast-stroke until you have it fairly well mastered and then take up in turn the work outlined in this chapter.

Benjamin Franklin laid down the fundamental principles of floating in a letter of advice on how to swim which is included in many an old-time book on swimming. Franklin observed that the arms, legs and head are heavier than the water, but that the trunk which contains the lungs, is lighter than the water; and that the body as a

whole is slightly lighter than fresh water, and considerably lighter than salt water. Franklin tells us that a person throwing himself on his back in salt water and extending his arms, cannot sink if he lies perfectly still. His feet will slowly sink until he is in an upright position with the top of the head only above water. If now the head be bent sharply backward until the face is uppermost, he can float with the body in a vertical position.

The weight of the body is so near that of water that if one falls or jumps in, the movement carries the body some feet below the surface, from which position it will slowly rise. The difficulties of the non-swimmer come from breathing in water or strangling from this first plunge, the consequent panic and blind struggles continuing to keep the face beneath the water. The body then sinks from the filling of the lungs, or from frantic struggling which actually causes the body to go down.

To avoid these difficulties one must first learn not to breathe when plunged into water, until the nose and mouth again rise above the surface. Second, one must learn to assume the positions in which the natural buoyancy of the body will cause it to float to the surface, and expose the

mouth and nose for breathing. As the body, as a whole, is only about one pound lighter than water it displaces, this means that in perfectly still water it will float with a part exposed equal to about one pound in weight, which is a portion scarcely bigger than the hand.

Floating is accomplished in the following positions: The horizontal, with the hands above the head; horizontal, with hands at side; vertical, with head thrown back; sitting posture, with knees drawn toward the chin and head thrown back.

I have purposely refrained from giving you this lesson at the start, because it is better to be able to swim before trying to float. You must become acquainted with the water so that you will possess self-confidence and can calmly maintain the required position.

Women and girls rarely meet with failure, even on the first trial at floating. Nature has aided woman by giving her smaller bones than man, and this tends to make her lighter in the water. In the case of men, a little more practice is required. Remember it is far easier to float in salt than in fresh water.

There is something remarkably exhilarating about floating about on water, and I am certain

that all of you will enjoy the experience immensely. Now for the lesson. If you follow my directions carefully you will be able to learn how to float in one lesson. Try this on dry land first, so as to become fully accustomed to the position.

Lie down on the floor flat on your back. Keep the chest out and the back hollowed. Do not stiffen the body at any time while floating. Now extend your arms over your head. Hold them extended, resting them on the floor.

Stretch the hands and interlock the thumbs. Now rest easily and draw a deep breath and hold it; then exhale slowly and continue to inhale and exhale slowly. At no time are you to breathe jerkily while floating as this will get the body to bobbing up and down and submerge the face.

Now into the water. Use the breast-stroke until you are away from the shore or side of the pool as the case may be. Now I want you to turn on your back. This may seem hard to do, but really, it is very easy and you should be able to do it at once. While swimming turn your body naturally and with a scooping movement of the hands and a little natural kick of the legs you will find yourself on your back. Now the thing to do is to remain there. Use your hands

as a balance and slowly work them back into the position above your head.

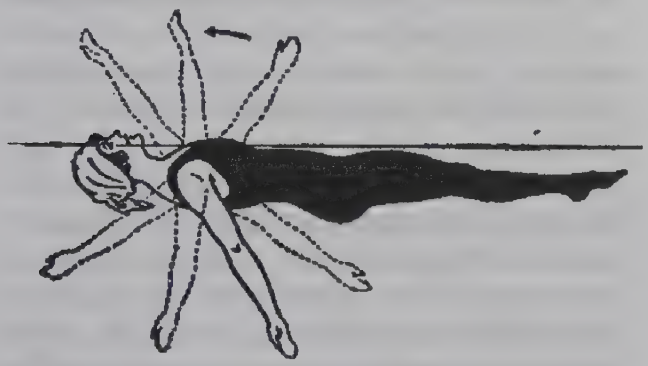
You should be able to float at once. If, however, you experience any difficulty simply repeat the effort in accordance with my instructions and you cannot help succeeding.

Remember to breathe slowly and keep your head so that just the mouth and nose are out of the water. If the rush of water about the ears worries you wear a rubber bathing cap, as I always do. Secure one that will fit snugly.

Floating can hardly be described as swimming, though it is often quite as useful. In salt water, even in fresh water, for individuals who are light-boned, or carry considerable fatty tissue, floating with the hands stretched above the head is entirely practical, but the heavier boned individual, in fresh water, can hardly accomplish it without some little movement. The easiest way for such people to keep afloat is to hold the hands at the sides, a little below the hips. If the hands are now worked at the wrist, this slight driving power will keep the body afloat. One can also move either forward or backward or turn around, according to the direction in which the palms of the hands are faced as they strike against the

water. This motion of the hands is known as *sculling*.

Swimming on the back is most easily performed by combining sculling of the hands with the frog-kick of the legs which is like that of the breast-stroke, except that the body is inverted.



Back-stroke

Because this back position takes so little effort to keep afloat, it is very easy to swim, either by sculling with the hands or with the frog-kick alone. In the latter case the hands may be rested upon the stomach or clasped beneath the head.

Swimming on the back in any fashion is very restful as a change from the other strokes; when the swimmer is obliged to make a difficult swim where there is danger of exhaustion it will be

almost essential to adopt this back-stroke at intervals for one makes fair progress with it although it is almost as restful as floating. Sculling utilises muscles not much used in the more speedy strokes; and the frog-kick of the legs is made from a position with the body more curled up, which is a rest from the straighter position of other strokes. In fact, the position in swimming on the back is exactly that in which physicians place patients who have fainted from over-exertion.

The full back-stroke is one with which considerable speed may be attained. The arms describe a driving movement near the surface of the water as in the breast-stroke but the movement differs in the recovery for the new stroke is made with the arms above the surface of the water. The stroke can be made very slowly and leisurely as there is no danger of the body sinking between strokes. The leg kick is usually the frog-kick. One can readily swim on the back without the use of the legs by the arm stroke alone and this makes it a valuable stroke to use in the case of a cramp in the legs.

The submersion of the entire head makes it feasible to raise the arms above the water, even though the swimmer has not yet developed great

power. The difficulty with the stroke is that one cannot see where he is going. Swimming on the back is not as powerful and speedy as the side and breast positions because the full driving force of the arms cannot be utilised on account of the position. But considering the fact that the head is nearly submerged and no energy need be expended to keep one afloat, swimming on the back becomes a very efficient method for negotiating distance with the least expenditure of energy.

Every swimmer, good or bad, should be able to tread water. While the importance of treading water cannot be overestimated, the method is an easy one. To be able to tread water means that at all times you are able to conduct yourself the same in the water as on land. When you know how to tread water you can, if in a difficult position, direct your rescuers and also see when they approach you how they intend saving you.

Before trying this in the water we will have our dry land lesson. The first thing to do is to place yourself beside the dining-room table. Now place your hands on the table, keep your elbows about one foot from the body. With your hands flat on the table move them rapidly back and forth sideways, turning the wrist down at each

movement so that the palm of the hand will force the water down, just as the blade of a propeller forces the water back and so drives the boat forward. Try to keep your wrists supple. Keep up this movement until you understand it perfectly. Now raise one foot until the knee touches the table. Now drop the foot and raise the other foot, then reverse and keep up this movement, alternating the movement of the legs while still keeping up the movements of the hands. The foot should hang limp from the ankle as it rises and should present the flat sole squarely against the water as it descends.

Having obtained an idea of the movement, in this manner, you should next practice it in the water. If you are still afraid of sinking, a rope suspended over the pool, so that its free end reaches within a few inches of the water, will calm your fear. Swim out and grasp the rope. Then, allow the body to sink to the vertical position till only the head is out of the water; then, while holding to the rope, move the legs up and down, in the movement known as "marking time." It is similar to the motion of walking, except that the knees are lifted slightly higher and the feet are not brought forward, but rise and fall continuously in the same spot. Work

slowly at first, and as your confidence increases, speed up till you have reached the speed of a fast walk. You will find that your feet, driving the water from under you, give you all necessary support, and that you can let go the rope and add the motion of the hands to that of the feet. By throwing the head back to relieve some of the weight of it you will find that the feet alone or the hands alone will support you—and that in salt water you can float in this position with little or no movement. If you tread water vigorously, you can raise the head up to a considerable height. The motion is invaluable in life-saving and in resting in long swims. For merely keeping afloat, it is a very efficient method of swimming, but, like a soldier marking time, one makes no forward progress; hence, it can hardly be called swimming in the strictest sense.

Before teaching you the movements of the arms in the single underarm or side-stroke, I want you to become acquainted with the leg movement or scissors-kick.

As I am teaching you to swim gracefully, I want to feel certain of your progress in acquiring the correct movements. The single underarm stroke is very pretty, and when you have mastered it you will be ready for the single overarm

stroke, which I consider the most graceful of all strokes a swimmer can use.

A small bench about two feet long, or a like article to rest on, must first be secured. Place a cushion so that it will provide a soft resting place as you lie on the bench.

Now lie down on the bench, leaning a little on your right side. Later you can learn to swim on either side, if you wish, but I advise the beginner to learn to swim with the right side down.

Now place both hands behind you so that they rest on the small of your back. Interlock them, and rest them right at the base of the spinal column.

The scissors-kick used in swimming on the side, either underhand or overhand, is very different from the frog-kick which you learned for the breast-stroke. In the scissors-kick, the legs work in front and back only as in walking, and are not extended sideways from the hips at any stage of the stroke; nor is the movement of both legs the same, as it is in the breast-stroke. This time you will move the upper leg but slightly and from the hip joint only. The lower leg is moved through a greater distance, but moves at the knee joint only.

To begin this stroke the feet are together and

the upper leg moving from the hips extended forward, but without bending the knee. If the knee should be bent, the effect would be to counteract the effect of the stroke. The lower leg is bent back at the knee; at the same time the toes are bent up toward the knee to offer the least resistance on the back movement. When the knee has been flexed until the feet are about thirty

Side-stroke, underarm movement

inches apart, the front or upper leg is brought back and the lower leg brought sharply against it, the toes being extended so that the bottom of the upper foot and the instep of the lower foot strike the water much as the palms of one's hands.

The efficiency of the stroke largely depends upon extending the legs slowly, while bringing them together is done with a quick, sudden snap. The immobility or inertia of water is such that when an object is moved slowly through it the water has time to get out of the way. But when

the same object is driven rapidly against the water, the water does not seem to have time to move and hence the body is driven forward by the reaction against the water.

To learn the arm movement, assume the same position as in the leg movement. Bring the right or underarm up close to the chest, as you would in the breast-stroke. Then thrust this arm out

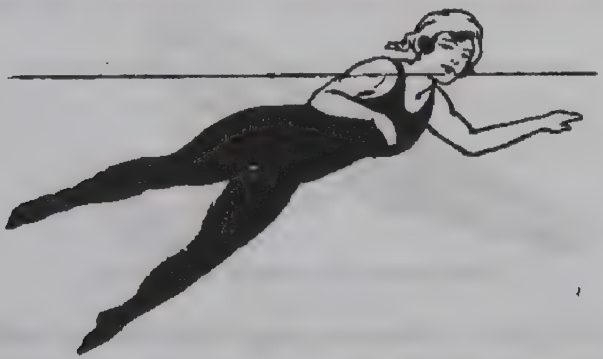
Side-stroke, arm movement

well in front of the head and bring it with a strong sweep backward until it comes within about one foot of the hips; then draw it up close to the body and repeat the stroke.

The stroke of the left arm is different. If you should thrust it out sideways from the shoulder as you do the right arm, you would bring it into the air; hence you bring it around in front of the face and chest. The stroke for the left arm begins with the arm beneath the water, though very close to the surface. The left arm

does not straighten out as does the right, but the stroke begins with the arm bent at the elbow and the hand cupped to offer resistance to the water. The stroke is now made near the surface of the water and directly in front of the face.

The stroke of the two arms in swimming on the side is alternate. You are now ready to com-

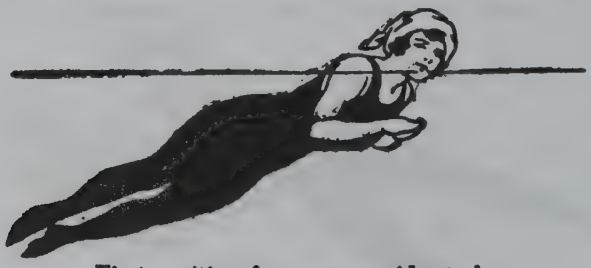


Side-stroke, combination arm and leg movements

bine the strokes. The underarm stroke is combined with the leg kick in much the same fashion that the arm and leg movements are combined in the breast-stroke. It is this underarm leg stroke that gives the body its chief forward impetus, and the upper arm makes its stroke while the lower arm and legs are recovering. Practise the combined stroke in your room first, so that you may note carefully the elements of the move-

ment, thus laying the foundation for a perfect stroke and graceful swimming.

When you have become thoroughly accustomed to this movement, enter the water. Instead of keeping your head out of the water let it rest well in the water. Assume the same position you would if lying on a bed with your head resting



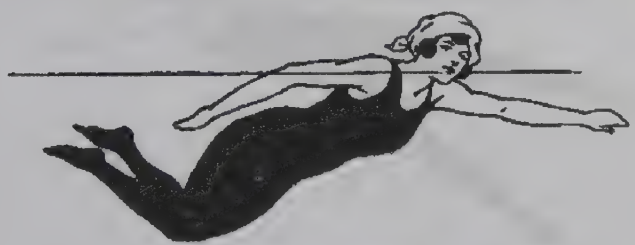
First position for overarm side-stroke

on a pillow. Remain on right side with the back of the head well immersed in the water.

The single overarm side-stroke is also known as the English Racing Stroke. It was the stroke employed by Captain Webb of England of Channel fame in days before the trudgeon and the crawl became the common racing strokes.

The only difference between the underarm and the overarm is that in the latter you bring the left arm out of the water. The object of raising the

hand above the water is to avoid the resistance of the water to the forward motion of the hand and arm. But as the buoyancy of the water is lost and one must sustain the weight of the arm, any stroke requiring the lifting of the arms out of the water is only suitable for those who have developed some powers in swimming. When swimming on the side, however, a sufficient amount of



Overarm stroke

the head is submerged to offset the fact that one arm is raised above the water, and therefore this stroke ranks among the easy ones adapted to beginners.

In order to do this gracefully, I wish you to imagine that your left arm is an oar of a boat. Most of the swimmers I have seen execute this movement, do it awkwardly. The buckling up of the elbow and the lack of grace that attends this movement, can easily be overcome if you keep

the arm straight out while it is being brought forward.

The arm when out of the water should never come far out. It should "feather" the top. By "feather" I mean this: that the hand should just about clear the top of the water in a broad,

"Feathering" the water

sweeping movement of the arm, not unlike the movement of an oar of a rowboat.

Try hard to use a smooth movement while executing this stroke. When the hand cuts into the water, let it be done sharply and cleanly. Keep the back of the head low in the water. The bringing together of the legs in the scissors should be done with plenty of snap and ginger.

The left arm should never be brought out of the water until it is down on a direct line with the

thigh. The most important thing is to time the movements of your arms and legs so that they act together.

Keep the body well up and nearly on a level with the surface of the water.

PART III

HOW EXPERT SWIMMERS ARE MADE

PART III: HOW EXPERT SWIMMERS ARE MADE

CHAPTER VII

MERMAIDS TO ORDER

WHEN my first big moving picture play, "Neptune's Daughter," was produced, we secured in New York the services of several hundred young ladies to play the parts of mermaids. Of course these young women were selected primarily because of their ability as swimmers. Much to my astonishment I found that very few of these girls who represented themselves to be expert swimmers were able to swim by the use of the arms alone. I had so long been in the habit of swimming either with arms or with legs, as the occasion might require, that I had not realised how helpless were many supposedly expert swimmers when deprived of one-half of their propelling power.

The business of being a mermaid for a moving

picture play requires that the legs and feet be encased in a mermaid's tail. Perhaps real fairyland mermaids use their tails effectively in swimming, but the moving-picture variety found their bound-up limbs quite as helpless as a Chinese lady's feet. As mermaids from fairyland were not available and we had to utilise the New York variety, I set about to teach these three hundred young women to swim without the use of their feet.

At first most of them were perfectly helpless; their arm stroke had to be altered and perfected for greater efficiency before they found they could rely upon it alone to carry them through the water. But with intelligent effort and perseverance they soon acquired an efficient arm stroke, and before the three months' training period was over most of them were able to swim at least a quarter of a mile with the arms alone.

This experience with the mermaids revealed a very simple but highly efficient method of quickly eliminating the early acquired faults which keep naturally able swimmers from reaching the expert class. Particularly in a country like America, where swimming is picked up haphazard, in all sorts of manners, times and places, the majority of those who consider themselves fair swim-

IT WAS IN THE TRAINING OF THE MERMAIDS THAT MISS KELLERMANN DEVELOPED THE NECESSITY OF TRAINING THE SWIMMER TO USE THE ARMS ALONE.

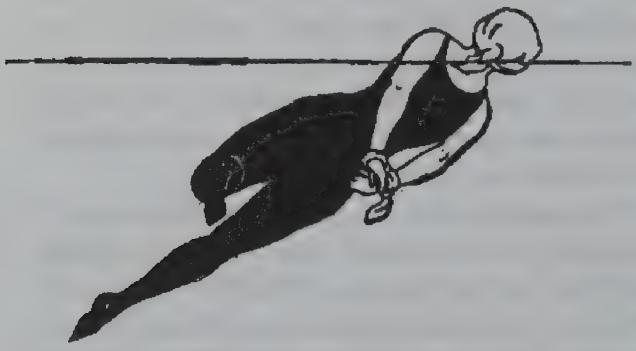
mers use such an inferior stroke that they realise scarcely half their actual possibilities.

Merely to tell such swimmers that they should correct their errors is rarely effective, for they think they swim well enough and old habits are indeed difficult to break. My system of forcing such swimmers to swim first with the feet tied and then with the hands tied results in the development of superior efficiency in both the arm and leg stroke, taken separately. When the strokes are again combined, our so-so swimmer has become an expert.

The usual method of learning to swim is first to teach the arm movement, then the leg movement, and then the combination of the two. The early efforts of the swimmer are not efficient, because of awkwardness in stroke, insufficient power in the particular muscles employed, fear and nervousness, an effort to swim too high out of the water, and difficulty in breathing.

Under such circumstances the combination of both the leg and arm stroke is required to support the body and make progress in the water. With the arm and leg strokes still imperfectly learned, the beginner combines the two, and derives from their combined effort sufficient propulsion to swim. Glorying in this new achieve-

ment, the enthusiastic novice usually gives little further attention to the fine details of a perfect stroke, but instead applies himself to miscellaneous swimming efforts. From the development of general familiarity with the water he seems to continue to improve. Yet all the while serious faults in swimming technique may be retained,



Swimming with legs alone

and these become more and more ingrained in the grooves of habit.

It would be quite impractical and discouraging to insist that the beginner so perfect the arm and leg stroke separately, that either would suffice for swimming without the aid of the complementary stroke. Hence, for practical swimming this early dependence upon the combined stroke is necessary. But after one has become

reasonably at home in the water and is able to swim a hundred yards or more with fair ease, it is then time to go back to the beginning and master separately the art of swimming with the arms alone and with the legs alone. The proof of the pudding is the eating; the proof of real ability in the arm stroke in swimming, is to be able to swim with it only. In the complete swimming stroke, good leg action may cover up serious defects in arm-stroke, or efficiency with the arms may drag along an awkward and untamed pair of feet.

So, if you have thought yourself a good swimmer, tie your feet together or tie your hands behind your back and jump into the tank and see what happens—if this is your first try, it might be well to have a friend who is a good swimmer near at hand.

In this hands-or-feet-tied swimming work you are beginning all over, and the same course of rigid daily practice, the same effort every day to surpass your previous speed or distance, will apply as in the original effort to master the art of keeping your nose above water. If you are a swimmer who can do your mile when you like, you should swim at least a quarter of a mile with the arms alone. The legs do not tire so

easily, and with them you should do even better. I mean swimming on the breast with hands behind your back. Of course, by turning on your back you can swim all day with the legs alone. It is one of the easiest strokes for endurance.

My own record for swimming on the breast with hands tied behind the back is one and a half miles.

Swimming with the feet tied is the most splendid chest developing exercise that has ever been, or is likely ever to be, invented. The only exercise which continues to produce development is that which daily requires the expenditure of more power. The superiority of swimming as an exercise consists in its expenditure of muscular power at a sufficiently rapid rate to develop superb lung and heart action; but not of such a nature as might cause actual injury and strain. The exerting of the limit of muscular effort, as in the single lifting of a weight, has but little effect upon the general vital processes. It is the exercise that involves a rapid succession of muscular movements, which demand an increasing oxidation and blood circulation, that develops both the particular muscles utilised and the general vitality.

Since our ancestors climbed out of the trees

and ceased to use their arm and chest muscles to swing about the branches, the muscles of the arms and the upper half of the trunk have been relatively neglected. The functions of standing and walking always give the legs fair development; but our ordinary arm work is often restricted to light-fingered operations that will never result in a truly normal development.

Swimming of any sort serves to remedy this defect, and will invariably develop splendid arms and chests for women. But those who would surpass themselves and secure the utmost benefit should, as soon as they have become moderately proficient swimmers, resort to the practice of swimming part of the time with the feet motionless (or tied) and thus develop the arms and chest to an even superior efficiency and beauty.

Any woman instinctively realises the serious fault in the beauty of her physique due to poor development of the bust. But, unfortunately, few women realise how important to a woman's true beauty is the development of the chest proper, as compared with mere development of the breasts.

If the breasts increase beyond medium size, they become unsightly rather than beautiful, but the chest development from swimming, due both

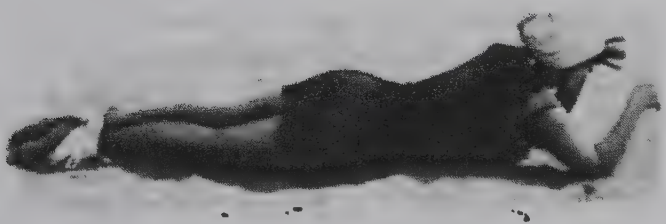
to the use of muscles and the increase of lung capacity, gives an effect of increased capacity in this part of the body which is harmonious with truly feminine charms, and which also speaks of deep vitality and power as well as of mere femininity.

Swimming is unquestionably the best exercise known for developing woman's physique to its fullest powers and charms, and for those who would become master swimmers, as well as for those who would have the most perfect arms and chest that nature can produce, I advise swimming by the arms alone.

Many strong swimmers who have learned the art in an indoor pool or quiet stream or lake, are quite unfitted to buffet the waves of the sea or the rapids of a turbulent stream because of the inability to breathe properly. The beginner must learn not to breathe in when the face is thrown under water by the intentional diving or the action of the stroke, as in the case of the crawl. In like manner the experienced swimmer must be able to reckon with the unexpected dash and slap of the waves, for the swimmer's breathing is a goodly share of the battle with rough water.

The experienced swimmer in stormy seas in-

THE BABY MERMAIDS. A PLEASING FEATURE OF MISS KELLERMANN'S NEW DRAMA OF THE SEA.



TO SWIM WITH THE FEET OR THE HANDS TIED IS A RAPID MEANS TO DEVELOP A POWERFUL SWIMMER.

stinctively reacts to the feeling or absence of water on the face, and when air is available he takes in the breath through both mouth and nose with a deep, quick inhalation that supplies the necessary oxygen until the next breathing opportunity arrives. The swimmer in quiet water may train for rougher seas by such diving and swimming stunts as will result in frequent disappearance of the face below the surface. The long steady stroke and the even breathing, while excellent, are not sufficient for the emergencies that may arise, especially in life-saving work. Many a life has been lost through the inability of the swimmer to meet these practical necessities of rough working conditions. Hence he who would be an all-round swimmer must seek opportunities to cultivate the acquaintance of rough water and learn not to lose self-possession when slapped in the face by the wild, wet waves.

Before closing this chapter I want to give you a little sketch of the history of swimming that will show you something of the progress that modern man has made in aquatic arts.

Swimming, unlike other modern sports, is an art that has probably always been known to the human race. Careful inquiry into the swimming ability of savages shows that the white man's

notion that all lower races are swimmers is not entirely correct. In many African tribes a large proportion of the boys were found not able to swim at all. Those who did swim first learned to paddle, dog fashion, and later adopted the breast-stroke, very much as do untrained boys among civilised peoples. Savages regard swimming as a utility rather than a sport and have rarely developed the art as a matter of recreation and pleasure, the exception of this rule being the more highly developed sea folk of the South Pacific.

The art of swimming was developed by the Greeks, Phœnicians and Romans to a very high degree. Many historic incidents reveal the practical utility of long distance swimming, as well as of diving and under water swimming in connection with ancient military and maritime affairs; but we have no trustworthy accounts or illustrations which would give us any definite conception of the technical development of the art in those days.

In spite of the fact that swimming is the most ancient and most universal of all sports, considerable development of the more skilled phases of the art has occurred in recent times. Leander daily swam the Hellespont to see his lady love,

a feat which entitled him to be ranked as a mythological hero. But by duplicating it Lord Byron robbed this myth of its glory. The extent of this recent development in swimming can be judged by a comparison of the variety of modern swimming feats and strokes with those set forth in a text book on swimming, published by Thevonot, a French authority of one hundred and fifty years ago. In Thevonot's book, which seems to be an effort at a complete treatise on all known methods of swimming, is given the breast-stroke, treading water, swimming on the back and the underarm side-stroke. The ancient wood cut illustrates this stroke as a very excellent form of the "scissors-kick," in a form of which a modern swimmer could be proud.

CHAPTER VIII

PROFESSIONAL SWIMMING

A NOW well-known swimmer, eager to make his mark in the sport but noted for poor form, asked a famous coach what he should do to attain rank as a champion. "Learn to swim," was the caustic reply. The fundamental basis of good swimming is to start right. The theory is generally accepted that athletic champions are born, not made; but in swimming a man's natural attributes will not raise him to supremacy unless he masters form.

In this chapter I will address myself not to the beginners but to those of you who are now desirous of training to enter speed and distance events in the water. The lazy man or woman had best not go in for speed swimming, for it is hard work, and the preparation for it is equally hard.

Swimming races are won in large measure on dry land. The necessary physical fitness and staying power are acquired, not only by steady swim-

ming practice, but by the strictest care of the health. Only the swimmer's own grim determination to win by making himself fit to win can hold him down to the sort of daily régime that is necessary if he is to enter the water properly trained and fit for a long, gruelling contest that will call for vast reserves of stored-up energy.

You must learn to swim by swimming, and you cannot expect to become a champion swimmer by a few weeks' training of muscles built up by other exercises. In fact, gymnasts are difficult to teach, and never become very good swimmers. They cannot seem to give themselves up enough to the water. Though it seems paradoxical, one must have absolute abandon and at the same time minute precision, to become a good swimmer.

To become a professional swimmer you must perfect yourself, for it is only by doing so that you will be able to accomplish anything. Always remember that when you compete or attempt a swimming record, the less water you displace, the more of a chance you will have to be successful. Try to glide through the water. Don't splash frantically, for then you only impede the movements of the body. Try to cut the water cleanly.

A knowledge of the advanced strokes, the

trudgeon and the crawl, is the first essential for speed swimming, as these strokes are always used when going after a record. I should advise that the pupil systematically try out the several variations of leg action with the two arm strokes, to determine what particular style of leg action gives the best results in his own individual case.

One hardly expects to be both a distance swimmer and a sprinting swimmer. A different kind of energy is applied to sprinting and when a short distance speed swimmer starts indulging in long swims, almost invariably it is at the expense of snap and vigour.

In distance work the swimmer falls into a steady, even stride, pulling as a rule, the number of strokes to the minute that has been found the least exhausting. Long distance swimming, if the swimmer is well trained, becomes more or less mechanical after the second or third mile. Again all long distance swims with few exceptions are made in tidal water, and of course the swimmer derives a great amount of help, because no one would think of swimming against the tide. Short distance races are usually over a still water course and this, of course, entails greater effort.

The swimmer intending to enter race events

THE CAPTURE OF "A DAUGHTER OF THE GODS" AT THE END OF A MILE LONG SWIM THROUGH A STORMY SEA.

should first devote many weeks, or even months, to training in private, for the purpose of bringing himself to a condition of maximum strength and endurance. Begin with a short distance and gradually increase it to one mile. When you can do a mile easily, do it and have some record kept of your time. Then try to lower the record by doing the distance repeatedly. When you are able to do the mile in creditable time without becoming exhausted, add a quarter or half a mile to your course, and increase this gradually till you are able to do several miles with reasonable ease.

Then and not till then you may consider going after a distance record in a professional event.

When you are finally entered in a professional event be governed by the requirements. If it is to be a short dash for a speed-record, use the crawl stroke and sprint from the take-off to the finish, putting every ounce of your energy into every stroke. In a distance event, however, such tactics would be fatal to your chances of success. You will see some of your competitors sprint at the start. Do not be so unwise as to imitate them, and do not be alarmed if they lead you for the first half of the race. You may find comfort in

the reflection that they are very unlikely to be present at the finish.

Make your start with a steady, even stroke which will give you a good average of speed without exhausting you at the beginning. After that take it easy. When the finish line is getting dangerously close and the contest between yourself and your nearest competitors has resolved itself into a question of speed, change from the trudgeon to the crawl and spurt for the finish line. If you have conserved your energies as carefully as you should for the whole distance, you will be able to put on a tremendous burst of speed at the last that will carry you over the line a winner over all your competitors. In requirements for winning a competition in long distance swimming, generalship ranks first, endurance second, and speed third.

In preparing for a distance contest, it is advisable to eat rather heavily, if your digestion is good, for a day or two before. (If your digestion is bad, don't try long distance swims.) The body will need all the stored-up energy you can give it, so eat well and get plenty of sleep. Never mind if you do gain a few pounds; you will lose them very rapidly in the water, and, incidentally, you will need plenty of nourishment on a long

swim. On my Channel swim, when I was in the water six hours, covering more than twenty-six miles, I ate three chickens. These had been carefully prepared beforehand, being boiled till the meat was reduced to a broth, which I drank from a bottle. I do not attach any especial virtue to the chicken porridge except that it stays with me. Chocolate, so often recommended for such occasions, upsets my stomach and one can get "plenty seasick" swimming. My advice on food is therefore to stick to foods that will best stick to you "when the trunks begin to slide."

I never use alcoholic stimulants in any form, either before or after a swim or at any other time, and I cannot too strongly advise against their use. While they may temporarily stimulate the user, the inevitable reaction is always harmful. In swimming, as in any other contest, the total abstainer has an advantage over even the "moderate" drinker.

Before starting on my long distance swims in cold water I have my body rubbed with a heavy oil, until the skin is well coated, as a protection against the cold. I learned this trick from other swimmers and have found it very useful, as the body is less sensitive to cold when so treated.

When attempting to swim do not try for a

longer distance than you are absolutely certain you can make. Always have a rowboat within call. In fact, you should never leave the safety zone without being accompanied by a rowboat. A bottle of alcohol for a rubdown and plenty of warm wraps should be in the boat ready for you when you have finished your swim.

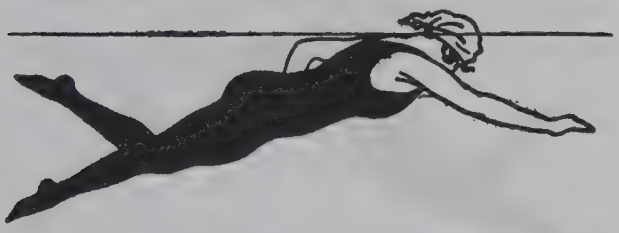
Jabez Wolffe, a great English swimmer, figures his stroke at twenty-nine to the minute and uses a bagpipe accompaniment to keep time and ginger up the water marching—Wolffe was formerly of the Highlanders and reasoned that if music would make men march it ought to help them swim.

I have found that I can cover my greatest distance with a stroke of twenty-eight to the minute. In dead water I am good for about two miles an hour which figures out seven feet of progress for each stroke.

Now seven feet at a stroke is considerably farther than an arm stretch so one does more than merely reach out to a new place in the water and pull the body up to that point. Instead, the body must be kept constantly going forward and the distance of seven feet represents not only the distance made while the arms are pulling or the feet kicking but also the steady forward motion

of the body that drives forward just as a boat continues to move between oar strokes.

The crawl stroke was originated in Australia by the Cavills, who were then at the height of their fame as swimmers. They were my teachers when I was learning to swim at the Cavill Baths in Sydney and it affords me real pleasure to acknowledge my sense of obligation to them.



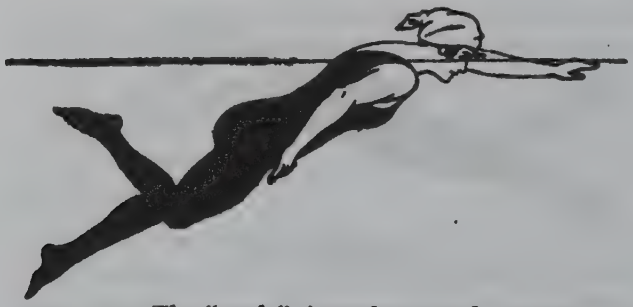
Australian crawl

The crawl is pre-eminently a speed stroke, and has therefore come to be universally employed in the short distance sprints. Nowadays the strongest swimmer using any other stroke in competition with it is likely to find himself hopelessly outclassed.

The object sought in the crawl is to overcome, so far as possible, the resistance of the body to the water, thus increasing the possibilities of speed. The method of accomplishing this is to keep the body as much as possible on the surface

and to crawl over the water instead of forcing a way through it.

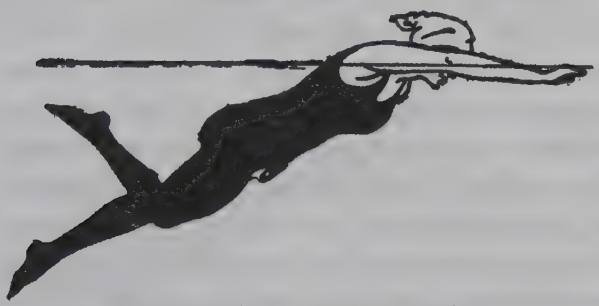
The swimmer must work as flat on his breast as possible with his face on the water, except when it is brought out for a fraction of a second on each stroke, by the slight roll of the body which permits the cleaner recovery of the arm above water.



The "catch," Australian crawl

The extension of the arms in reaching out for the "catch" should be long but comfortable and suited to the build of the individual, that there may be no strain on the shoulders and chest muscles. The elbows are raised and bent slightly, and the wrists curved so that the applied power becomes effective at once; the fingers are closed and the hand a bit spooned. The catch is to be made directly in front of the head. The arms

must be straight in driving, and the hands follow the centre line of progression, under the middle of the body, until near the finish when they are swept out to the side, crooked at the elbow and carried forward over the surface for another stroke. Pressure of the arms in pulling should



Leg stroke, Australian crawl

be held evenly until near the finish, relaxing at the hips instead of jerking out.

Stretch the legs out with the toes pointing back to perform an up and down thrash close to the surface, but beneath it, only the heels being shown above the water; the continuous thrash is marked by a major drive of each leg followed by a smaller drive. The major drive should have a scope of about twelve or fifteen inches, the smaller drive is a mere flutter. The downward movement is hard and quick, the upper one easy

in recovery. The action of the arms alternates and the time of their respective catch is equidistant, or nearly so, driving swiftly and recovering slowly. The action of the legs also alternates and the major drive is timed synchronously with the pull of the opposite arm.

Breathing deeply and regularly, strive to empty the lungs completely of vitiated air at each inhalation. The breath must be taken through the mouth, rolling gently and twisting the face toward each arm while it drives forward. The breath is exhaled through the nostrils under the water during the recovery of the same arm. The spinal column is held as straight as possible and parallel to the centre line of progression.

There has developed a slight difference in the crawl as practised by Australian and by American swimmers. The Australian considers that the simultaneous right arm and left leg action, and vice versa, gives greater propelling force than when the arm and leg movements are independent of each other.

The American, however, holds to the independent leg action on the theory that it helps to develop faster leg action, giving continuous propulsion, and also reducing resistance by minimising

the submerging of the body caused by the overarm action and reducing the tendency to roll.

The American arm stroke also is shorter, straighter, and faster but reduces the opportunities for breathing, as the periods when the face is out of the water are more infrequent and much shorter. During these brief intervals between

First position, trudgeon stroke

submersions of the face, the swimmer must manage to get a sufficient supply of air. Breathing is the big problem of swimming the crawl stroke. As the face breaks the surface for only the merest fraction of a second the swimmer must learn in that time to literally gulp a huge mouthful of air into the lungs through the mouth and then exhale it slowly through the nose while submerged, never entirely emptying the lungs of air.

Whether the swimmer should use the American

or the Australian method is chiefly a matter of individual adaptability.

Many very fast swimmers do not use the legs at all in the crawl, merely permitting them to trail behind motionless. When they are used, the movement is merely paddling up and down with the feet. In no case are the legs drawn up as

Arm movement, trudgeon stroke

in the frog-kick. There is no hip action in the crawl.

Taken all around, I consider the trudgeon or double overarm stroke the greatest of all strokes in swimming. The statement that it is tiring is not true. Of course, it must be done properly. When learning the trudgeon stroke you should be very careful how you start, for once you get bad habits it is very hard to break them.

Here is the essential movement for the trudgeon stroke. Lie flat on your stomach with legs

extended. Place the right arm out ahead of you in a line with the head. The left hand should be placed at the side of the body with the hand resting on the thigh. Now start with the right hand and with a broad, sweeping motion plough through the water until that hand comes to rest on the thigh. While the right hand is executing this movement the left hand should leave the

Leg movement, trudgeon stroke

side of the body, pick clear of the water and with a graceful full-arm sweep feather, or skim, the water until the hand is alongside the position occupied by the right hand at the beginning of the motion previous to starting. While the left hand is on its upward movement the legs should be separated as in the side-stroke. Then as the right hand comes down the legs snap together in the regulation scissors-kick.

Swimmers who have attained the enviable

heights of record holding can in every instance trace their success to the fact that they began their swimming with a good foundation. Learning to swim the chosen stroke correctly and not trying to take up a more difficult movement until each fundamental is thoroughly learned is the secret of the success of all great swimmers.

The trudgeon and the crawl are practically the only strokes now used in race events for either time or distance up to five miles. The trudgeon is the older stroke. When the crawl came out and showed such furious speed possibilities there was a tendency to claim everything for it and adopt it for all distances. But this was hardly logical; and in distance events the trudgeon is now quite generally recognised as the stroke to rely on, though a few long distance swimmers still use the crawl, maintaining that it is the fastest for distance events as well as for sprinting.

I admit that the crawl has been successfully used on several occasions in doing the mile and lesser distances, but in long swims, such as the English Channel swim, San Francisco Bay or New York or Boston Harbour, the trudgeon as shown by the records seems to have decidedly the best of it.

I have always used the trudgeon in the dis-

tance events in which I participated, and have made records with it, ranging all the way from one hundred yards to twenty-six miles. When the trudgeon was first originated by an Englishman, whose name it bears, it was a double overarm stroke with the frog-kick of the legs, and was used for short distance racing only. The modern stroke with the scissors leg movement as I swim it is much less exhausting than the crawl and I have maintained an average of twenty-eight strokes to the minute, for hours at a time, without resting or changing it. I am convinced that any swimmer who will learn the trudgeon properly can do any distance within reason.

There are all sorts of variations of both the crawl and the trudgeon, hardly any two swimmers seeming to do them in exactly the same way. Particularly in the matter of leg action every swimmer seems to be a law unto himself.

For my own part, I prefer for the trudgeon the scissors leg action exactly as first described for the underarm side-stroke in chapter six. It is an easy and natural movement when combined with the trudgeon arm stroke, and gives entirely satisfactory results with a minimum expenditure of energy. Use only one leg kick to the stroke

of both arms—not to each arm, which is a mistake of some self-taught swimmers.

People who are going to take up long distance swimming should take up one stroke and use only one stroke; because changing of strokes each twenty, thirty or forty yards puts one out of pace, and the main thing in long distance swimming and in training for long distance swimming is keeping up a certain pace.

Nowadays if you are a sprinter, you must be able to do the crawl to do the time. When the crawl first came out swimmers doing a two hundred yard race would swim one hundred and fifty or maybe one hundred and seventy-five yards of the trudgeon, and then finish up with the crawl at the last spurt. Nowadays it is very rarely done, because if you are a sprinter you go after the crawl and the crawl only, and if you are a long distance swimmer, of course the crawl is of no use at all.

If you are going to be a champion swimmer and you want to be a sprinter, you should at once adopt the crawl, because the crawl is the only stroke for fifty, one hundred or two hundred yards. For anything over that distance the trudgeon stroke is the best stroke. But a woman sprinter is not as fast as a man sprinter because a

man gets so much more by sheer animal force with his arms and his shoulders. She has a better chance in long distance swimming.

The English Channel is the world's greatest swimming event. It has been swum only once since Captain Webb was accredited with doing it, although it has been attempted by about fifteen or sixteen men. I hold the record for women —only one other woman has seriously attempted it. This swim has always been considered a sporting event in England, and has had to be conducted according to the absolute standards of English fair-play, with timekeepers, and athletic association umpires, and newspaper representatives.

Of the men who have tried it, Burgess, Montague Arbine and Jabez Wolffe made the best records. Burgess is the only man who has actually swum the English Channel since the elaborate precautions were put into effect. He was in the water twenty-three and a half hours and used a single underarm stroke. No Channel swimmer, to my knowledge, has ever been known to change his stroke during the swim, even if he were in the water ten hours. Montague Arbine used the back-stroke. To me that was the most marvellous physical effort I have ever heard

of, swimming on the back with the water so rough that his head was under water half the time. Jabez Wolffe used the single overarm. I had always used the trudgeon in swimming in Australia, and my father did not think it wise for me to change, because a trudgeon stroke swimmer, if he can stick, gets better pace than one using the single overarm; and I knew that if I were to swim the English Channel I should have to make it a fast race. I think I have come nearer swimming the Channel on the trudgeon stroke than any other swimmer, man or woman.

The rules governing competitive swimming contests are as follows:

The officials are one referee, three timekeepers, three judges at the finish line, one clerk of the course, with such assistants as may be required, and one starter.

In one hundred yard contests each swimmer is required to stand with one or both feet on the starting line, and plunge at the starter's signal. On no account is he allowed to step back either before or after the starting signal is given.

For longer races competitors may, if they so agree, start in the water, treading water on an imaginary starting line. In other respects the rules are the same as for the hundred yard sprint.

Each swimmer must follow a straight course paralleling that of the other swimmers, from start to finish. Each man is allowed a straight lane of water ten feet wide and is required to keep in his own lane. If he goes out of it and in so doing touches a competitor he may be disqualified from the contest.

When any portion of a swimmer's body touches the finish line he has finished the race.

A check starter is used in handicap competitions. It is his business to see that no competitor starts before the proper time.

CHAPTER IX

EFFICIENT LIFE-SAVING METHODS

TO master the art of swimming is a duty which you owe not only to yourself but to others. By being able to swim, you lessen the chance of losing your own life, and also cease to become a source of danger to others in case of accident. Now if you will add to your swimming the accomplishment of life-saving, you will become a positive element of safety to others.

Investigation shows that forty-four per cent. of the deaths from drowning are due to the unskilled efforts of one person trying to help another. These deaths can be avoided only by general education in the proper methods to pursue—first, in case one is himself in danger of drowning; second, in helping to get a drowning person from the water; third, in resuscitating the nearly drowned after rescue from the water.

The drowning person who is a swimmer, but who has been overtaken with cramps or has met with a disabling injury, is much less likely to be-

come panic-stricken and grip the rescuer in a mad death-clutch, rendering both helpless. The disabled swimmer will usually co-operate intelligently with the rescuer, thereby infinitely increasing his chances of being saved, and lessening the risk to his rescuer.

Those swimmers who would become professional life-savers must go through a severe course of training with much demonstration and practice work. Such a course should include not only the general swimming strokes, but handicapped swimming strokes, such as swimming with the hands or feet tied, swimming with the hands held above water, swimming carrying a weight or towing a person, practice in swimming under water, and diving for sunken objects, or, better still, objects so balanced that they will float midway between the surface and the bottom. The further stages of the life-saver's education will include the mastering of the various positions for towing drowning persons, the breaking of the various drowning clutches, and lastly, a thorough course in resuscitating and restoring to life the nearly drowned.

But those swimmers who are not willing to become expert life-savers may still improve their chances of being useful in an emergency by prac-

tising the following: first, by swimming with the head above water; second, by swimming under water; third, by diving in search of sunken objects; fourth, by practising with a fellow swimmer the breaking of clutches, taking turn about in acting the part of victim and rescuer. You should also retain your practice of the breast-stroke, as this is the only full power stroke from which one can see for the work of rescue.

The best thing that a non-swimmer can do to decrease his risk of drowning in case the boat upsets is to learn to swim. Having neglected this precaution, the next best thing will be to have the presence of mind not to lose his sanity while he is drowning.

It seems foolish to advise a man what to do when drowning; yet we advise people with the utmost seriousness what to do when the house is burning. The man who is cool in the face of danger lessens the danger.

The non-swimmer is usually drowned by his own efforts. What he should do is to remain perfectly quiet and float. He should also hold his breath as much as possible. It is no more unpleasant to die by suffocation than by drowning, so why should a drowning man insist on filling his lungs with water?

This advice to the drowning man is good advice; the only drawback is that when drowning one is not in the mood to appreciate its value. However, the more deeply one has the fundamental principles ingrained in the mind, the less quickly will he lose his sanity in the face of danger. We chiefly fear that which is strange; and for swimmers or non-swimmers the better one understands the dangers of water, the less will he fear and the less will he have cause to fear.

One practical thing for the non-swimmer or the poor swimmer to remember is that when wading in unknown waters, one should not hold the arms above the head, but should hold them at the sides, with the palms of the hands facing downward. In case of a "step-off" the non-swimmer will save himself from a sudden plunge over his head, and have a fair chance of struggling out. Once in beyond your depth, the vital thing to remember is to keep your mouth closed, hold your breath, and try to float. It need be no finished form of floating, but merely the effort to keep the nose and mouth above water without raising the head or arms. If you must shout for help, do so loudly once or twice and then save your breath. Continuous screaming and struggling increase the chance of death, even if help is attracted, be-

cause of the filling of the lungs with water and the consequent suffocation.

Lastly remember that when rescue arrives, your part is not to grab or clutch the life-saver, but to aid him by doing absolutely nothing and make yourself as easy an object to be towed ashore as would be a completely inanimate object.

Though the ability to swim decreases the dangers from the water, there are many occasions when a swimmer may need assistance in the water. This may happen if one is plunged into very cold water, or in water when heavily clothed. It may also occur if the swimmer is injured, and lastly, and most commonly, in case of cramps.

The art of swimming usually involves the ability to cover distances, but when the swimmer is in danger of drowning, it is often more vital to keep afloat for a sufficient length of time to enable aid to arrive. Hence, floating, swimming on the back, treading water, and all such means of keeping afloat with the least expenditure of energy are an aid to safety.

The most common cause of cramps is swimming in water of too low a temperature, or remaining in the water too long and becoming thoroughly chilled. Unless the water is very

warm, the swimmer should not remain in it longer than from fifteen to thirty minutes.

A period of at least two hours should elapse between eating and entering the water, in order to give the digestive processes time to get their work well under way. If the water is entered too soon after eating, especially when it is at a low temperature, the digestive process is immediately arrested, and this in itself is likely to produce a severe case of cramps, and perhaps result in acute indigestion which may prove serious.

Women are less exposed than men to the dangers of becoming chilled, for the reason that the surface of a woman's body is covered with a layer of fatty tissue, which helps to protect the deeper tissues from the chill of the water. Nevertheless, there is always danger to any one of an attack of cramps, unless the water is very warm.

As I have often stated, the body must be free when you are in the water; therefore, if your bathing suit is one that is heavy and cumbersome, you stand less chance of saving yourself. Sometimes, also, the bands that hold these awkward bathing suits together impede the circulation of the blood. Remember to keep the body relaxed. Never stiffen the body to the stretching point, for this has a tendency to induce cramps.

Even if you do get cramps while in the water, don't try to scramble to safety. You are not in danger, even if you have cramps. Remember you are not in danger. What you must do if the feeling of cramps grips you, is to float.

A sudden shock will sometimes relieve a cramp at once. If you feel a cramp coming on, thrust the arm or leg in which the symptoms are felt above the surface and repeat this several times. The sudden exposure to the air often affords relief to a cramp at once, preventing what might otherwise be a serious attack.

As soon as the swimmer begins to experience an uncomfortably chilly feeling, he should leave the water at once. If you are far from shore, and feel an attack of cramps coming on, remember first of all that you must not allow yourself to become excited. To do so may cost you your life. Turn shoreward immediately and keep your wits about you, and you will be able to save yourself, or at least to keep afloat till help can reach you.

All you have to do is to keep your thoughts from becoming confused. No matter whether the feeling of cramps has gripped you or how much it hurts, there is absolutely no danger.

Therefore, all you should do is to float on your back. Try if possible to propel yourself slowly

towards shore. If you concentrate your thoughts and keep them on the idea of floating, floating, floating, you can save yourself easily. Become proficient in the art of floating, and you will eliminate nine-tenths of the danger of drowning from cramps.

The only occasion when floating will not suffice is when there is no help within call and you must make the shore alone.

The cramp is almost always confined to one arm or one leg. Occasionally it attacks both arms or both legs. If your cramp is in the legs, you have little to fear. Simply leave your legs to take care of themselves, and swim with the arms alone. If you have mastered the trick of swimming with the arms alone, you can cover a long distance in this way, if you will not become excited and exhaust yourself.

Should you be seized with cramp simultaneously in both arms, your predicament will be more serious, but by no means hopeless. Simply allow your feet to drop to the vertical position and tread water. While waiting for rescue remember that it is up to you to keep afloat and if possible to make some progress in the direction from which assistance must come. Treading water will keep you safely afloat, but will not

victim's right wrist, pull him around immediately on his back into a towing position.

If the victim is quiet, speak to him encouragingly and attempt to gain his confidence with the assurance that he is no longer in danger. Try to make him understand the necessity of giving you all the aid he can in effecting his own rescue. If such confidence can be gained, the actual res-

Rescue of quiet victim

cue becomes a comparatively simple matter for the experienced swimmer.

Upon your method of laying hold of the victim may depend the success or the failure of the rescue. The proper hold depends upon the degree of calmness of the victim.

In case of a tired swimmer needing assistance or suffering from cramp, or even a non-swimmer who knows what to do or is rational enough to follow instructions, the proper method is for the victim to place his hand extended at arm's length

on the rescuer's shoulder and sink his head as low as possible in the water. This position gives the swimmer the fullest use of arms and legs for the breast-stroke. But this position is exceedingly dangerous to the rescuer if there is any doubt as to the victim's reasonableness, for from this position the crazed victim can climb upon the rescuer's back and get a leg-lock around the body, which is one of the most difficult holds to break.

In case of a victim not struggling, turn him on his back, place hands on either side of his face, so that the palms cover his ears and your fingers point toward the top of his head. Lie on your back and swim toward the shore, using the frog-kick. Lie well back as you tow, so that both bodies will be in a nearly horizontal position.

In case of a person struggling frantically, approach quickly yet quietly from behind, but give no warning call. If possible grasp him by the arms, pressing your fingers into his biceps. Press the arms sharply back so that his legs come up. If you grasp him firmly enough with this hold, you should control him easily, no matter how strong he is. Holding him in this position you can tow him ashore by swimming on the back with the frog-kick.

No matter what precautions you take there is

still danger that the drowning person may clutch you in some manner and you must know these clutches and how to break them. With proper knowledge, a weaker person can break the clutch of a stronger, if he but know how to do it.

When the victim grasps both your wrists, bend

Breaking a wrist-hold

your arms first downward, then outwards and then upward. The result will be to twist his wrists and put all the strain on the victim's thumbs, thus causing intense pain. Practise breaking this hold on land and see how very effective it is. The pain is too severe to be endured, and the clutch is immediately released.

When the victim grasps one of your wrists

Breaking a body-hold

with both hands, draw away from him, place your foot against his chest and push. As the legs are much stronger than the arms, it will be readily seen that the hold must break.

If the subject gets his arms about your body from the front, draw up your knees with a sudden movement, as close to the abdomen as you can bring them, and then kick out straight forward with both feet, putting plenty of force into the kick. This movement will break a body-hold, no matter how strong the victim may be, as this again is leg strength against arm strength.

The difficulty of the above break is that the victim sometimes gets in such a position that you cannot get at him with your feet in any effective manner. In that case, you have the choice of two moves:

You may place your left hand in the small of his back, palm of right hand on point of jaw with index and middle fingers squeezing his nostrils. Push away with right hand and hold back with left hand.

Your second choice is to bend the drowning person's head back by pushing back his forehead, and then giving him a quick short jolt on the point of the chin with the fist of your free hand.

Once you know, it is child's play to slip out

of the clutch of a strangler. It is done in this manner: First, bring your arms upward and outward with a quick jerk, till they are on a level with your shoulders. Simultaneously with this movement of the arms, bring your head forward

Breaking a strangle-hold from in front

and downward with a snap, turtle-fashion, and your strangler will suddenly find his arms around nothing but water. It makes no difference how strong he is. No man is strong enough to maintain a strangle-hold if this method of breaking it is used.

The shoulder hold is one of the most danger-

Strangle-hold from behind

ous because your arms are pinioned against your sides. The only way to break this hold successfully is to raise your arms above the head. This causes the drowning person's arms to slip around your neck, and you can then drop out as from the strangle-hold.

The strangle-hold from behind is far more dangerous because it is more difficult to break. In attempting to break it let the feet sink till the body is in a vertical position and tread water for a moment to bring both heads well above water. Then, after grasping the wrists of the victim, drop your head forward as far as you can and throw it back with all the snap and force you can put into it, striking the victim on the nose. The blow should stun him, breaking his hold, thus enabling you to pull his arms apart. If this does not gain you your release, you should take one or two of his fingers and bend them backwards until the pain forces him to release his grip.

The body hold from behind is one of the hardest of all the holds to break. If it is an arm hold only, you may be able to push the encircling arms downward over your body to the lower abdomen, and proceed shoreward, swimming with the breast-stroke. The face of the subject, however, in this position will be sub-

merged most of the time, and he will, therefore, soon be likely to loosen his hold, giving you an opportunity of securing a more satisfactory position. You should watch for the opportune moment, and when you feel the grip of the victim relax, slip quickly out of his hold and out of his reach. Then turn and approach him from behind, turn him quickly on his back, and secure one of the towing holds.

The body hold from behind with leg grip is the most dangerous of all the holds and is caused by the victim trying to climb on the rescuer's back, thus forcing him beneath the water. Release may be obtained by turning and placing one hand over victim's face, and pressing his nostrils tightly, at the same time pushing him away. With your other hand you should grasp one or more of the drowning man's fingers which are in front of your abdomen, and bend them back. When the pain of his bent fingers becomes too great for the victim to stand, his legs will become loosened and the rescuer can kick free. If it is a leg hold around your body where you can reach the victim's foot, take the ankle of one foot in the left hand, using that hand as a vice, and grind foot in a circular motion with the right hand.

This physical force necessary in rescue is no excuse for brutality. A person may be made harmless without giving serious injury if proper judgment be exercised. In many cases it is necessary for the rescuer to strike or otherwise hurt a drowning person in order to prevent the loss of both lives. If you see that the subject is in a state of insane fear, do not try to reason with him, for quick and decisive action, even though it may involve the use of a certain measure of violence, is essential. In extreme cases of violent and persistent struggle, when the rescuer knows he has yet a hard swim before him, the only thing left to do is to render the victim unconscious. This may be gained by any of the pugilist's favourite knock-out blows, of which a right or left hook to the point of the jaw is the most effective. The solar-plexus blow, delivered just below and a little to the right of the heart, although it works quite as well, is difficult to deliver under water with the required force.

A favourite method of subduing the struggler, in vogue among professional life-savers, is to grasp the subject's nose between the thumb and first finger and squeezing it tightly, give it a quick, sharp twist. The nose may bleed freely, but there is no serious injury and the subject will

usually become quite amenable to the wishes of his rescuer. If this does not have the desired effect, perhaps the most effective method, though one rather unusual for any one save a professional life-saver to remember, is to pass one arm about the subject's neck, and press the other thumb upon the pneumo-gastric nerve, a little

Towing ashore

back of and below the ear. The effect is precisely the same as a "knock-out" blow.

To tow a drowning person ashore, a variety of holds may be used. A method sometimes recommended is to drag the subject along by the hair, either on the side, with the single underarm stroke; or on the back, sculling with one hand, and using the feet in the ordinary frog-kick. The rescuer may also swim face downward, using the

breast-stroke with his free hand. This method is very slow, however, as in this position the body of the subject trailing behind interferes with the effective use of the swimmer's feet. Moreover if the victim's face is not kept above water he may be drowned while being rescued. This last risk may be avoided, if the victim is a woman, by passing her hair between your teeth. The victim's head rests face upward against the back of the rescuer's shoulder and is well out of water. Remember that it is of the utmost importance to keep the face of the drowning person above water even though your own should become immersed part of the time. You can control your breath; the victim cannot. All jerking and tugging should be avoided and you should swim with a steady stroke.

When towing a struggling person on the surface of the water it adds greatly to keep the elbows of the victim pulled out and back as this expands the chest and inflates the lungs, adding buoyancy. The legs should be kept well up to the surface, the body being almost horizontal. Take pains to keep the whole body submerged (except the face), thus gaining buoyancy.

When the swimmer is strong enough to execute it, by far the safest way of carrying a drown-

ing person is accomplished by placing the chin of the victim in the hollow of the elbow while his head is grasped in the same hand. In this position the drowning person is on his back and cannot interfere with the work of rescue. But the chief advantage of this position is that the person "carried" in this manner has his face well out of water.

Never conclude that the victim is dead even though he may apparently be so. When a person's lungs are filled with water the heart action is imperceptible and the condition is very much like death itself. Even physicians are often deceived in these cases. Even if you feel sure that the victim is beyond aid make the attempt at resuscitation anyway. That is the only safe rule, for the result of properly applied restorative methods will often prove that the victim is still alive.

Immediately on bringing the body ashore loosen the clothing. Then after cleaning the mouth and the throat of mucus or seaweed empty the lungs of the water. See that the mouth is open. Sometimes the teeth are set tightly. In that case force the mouth open and reach into it with the thumb and finger and pull the tongue out as far as you can. Do not take much time in doing

these things. Work fast. Next roll the body rapidly from side to side over a log, if any is available, but if not stand astride the body, reach your hands under the hips, raise them as high as you can, holding them so for a minute to drain the water out of the lungs. When you have emptied the lungs of water as nearly as you can the victim may begin to show signs of returning life, but whether he does or not immediately apply the aid of artificial respiration.

There have been published scores of methods of producing artificial respiration for reviving the nearly drowned, but this is a case where number and complexity of methods is a danger, not an advantage. A complicated operation that is to be performed but once in a lifetime and on which a life depends is obviously a matter where simplicity and uniformity are highly desirable. With this in view, the British government appointed a commission to find the simplest and best methods. They adopted the method of Dr. Shaeffer of Edinburgh, which is conceded to be both the simplest and the best. As such it has officially been adopted by not only the British government, but by the United States Army and Navy and the Red Cross.

Do not try to become an expert in a variety of

methods of resuscitation unless you are a physician or a professional life-saver. But learn this one method well and, if you are a parent, insist that it be taught the children in your schools. Do not be content that you or they should merely know the theory. Take turn about with a friend first acting as patient and then as operator.

The patient should be laid face down, head turned to one side and mouth open, upper arms at right angles to body and a forearm may be folded under the face to keep the mouth free from dust. The operator kneels astride the body over the thigh. Place your hands flat on small of the patient's back, on each side of the spine with the thumbs toward the back bone and fingers spread out on each side of the body over the lower ribs. Lean forward, keeping arms straight; steadily allow weight of your body to fall upon the hands and produce a firm downward pressure, not violent; at the same time press inward with the fingers with all your weight. The object is to decrease the size of the chest cavity. This drives the air and water from the patient's lungs. Count five while pressing. Swing backwards, releasing the pressure and count five, but do not lift hands from the victim's body. The release allows ribs to spring back and increases the size of the chest

cavity. The first duty when a drowning person is brought ashore is not to run for doctors or raise and give alarm, but to act at once to restore breathing. If a second person is present, he may be sent for a doctor. If others are present, let them remove the patient's wet clothes and wrap him in warm, dry ones, or make hot applications if such are available or rub the limbs toward the body to restore circulation.

The effort to restore respiration should be kept up for at least an hour before you have any right to admit defeat.

CHAPTER X

WHERE SHALL WE SWIM?

ONE day in your greatest New York, a day when the pavements burned through one's shoes, I saw a dirty little boy take a silent plunge in the City Hall fountain behind a big policeman's back.

The man beside me laughed as we watched the child steal out and run swiftly down the street dripping long streaks of dirt. Then he spoke quietly, "Poor little chap, the white marble doesn't make it up. You know I can't remember a boy in the old days who didn't swim. To-day there's probably not a street urchin who can't tell why Bill's up next, but how many can swim? A queer thing the way we leave the most important knowledge to chance."

Then it was I began to think what so many children are missing in your American cities. I want them to find what they have lost. It isn't the children alone to whom I would talk, but any one from four to eighty-four. This is not an

argument for swimming. That point is as nondebatable to me as woman's suffrage. No question exists. "Swimming for all! Suffrage for all!" I only want to convince you that there is something for everybody in rivers and lakes and oceans.

Bathing and swimming were never meant to be divorced. Swimming was meant to be one expression of man's activities and by means of it he was unconsciously to achieve cleanliness. But there are those who cannot find either an ocean or an outdoor pool, and summer calls to them too. For them must be the indoor pool. Swimming under a roof to me is like big game hunting in a zoo. All legitimate fascination goes. But until we are a wiser race and can divide things in a more even way, I am afraid there is no other solution. Every board of aldermen and every mayor worthy of an official place in this democratic nation should urge to his utmost ability more free swimming pools.

The greatest swimmers of all have come from the great cities, possibly because the young inhabitants who wanted rest from the noise and dirt, could find no quiet fields and so turned to the water. These municipal pools are thronged from morning till night. The bathers must stand

in long lines and every twenty minutes a gong tells one set to go and notifies those waiting that their turn has come.

Much has been said against the sanitary conditions of these free pools; but recent investigation in New York shows that they are kept as clean as the most exclusive pools in the city. The water is in constant circulation. Bathers must furnish doctor's certificate, take a hot soap shower before entering, wear rubber caps and sterilised suits. But this only shows what may be done. There is no city in America that has half enough swimming pools, and I shall never be satisfied till swimming pools are so plentiful that when I show any dirty little boy an ocean he will know how to use it.

More than twenty-five per cent. of all men and boys over twelve in the United States do not know how to swim. Taking both sexes into consideration over half the people are not swimmers.

The soldier must be able to swim across a river with his clothes on, keeping the gun free from the water by holding it up in one hand. France and England now demand swimming for both navy and army and I have recently learned that West Point and Annapolis have added it to their schedule. I believe no college in America should

THE START OF THE BACK DIVE.

give a diploma to a man or a woman who cannot swim, and I here wish to pay a compliment to Vassar College as the first to make swimming requisite to graduation. Any man who cannot swim should be held in disgrace, and any man who has watched a fellow man drown because he could not save him can bitterly feel the shame.

When one reads of the *General Slocum* and similar accidents, it is hard to understand why this country did not begin sooner to advocate the practice of live-saving and swimming contests such as have long been in vogue in England, Sweden and Australia. They should be held in every city and medals for proficiency awarded. The Royal Life-Saving Society and the Amateur Swimming Association in England have done much toward spreading swimming throughout that country. In Sweden, a special holiday is devoted to swimming and all champions who have completed a regular course in swimming and life-saving are crowned with oak leaves. Races and exhibitions complete the programme and the day is finished with a banquet. That an effort to foster a similar spirit in the United States is rapidly growing is evidenced by the Y. M. C. A. campaign with the slogan "Every man in America a swimmer." Enthusiasm for

swimming has also grown in American colleges that have taken it up as a sport.

Why the American people with their great prosperity and their love of athletic sports of all kinds should have provided so few swimming pools seems to me an insoluble problem. All small boys ran off to the old swimming hole and splashed to their heart's content, utterly devoid of swimming costumes of any description. But swimming for grown-ups seems to have been considered puerile and hardly respectable. The most plausible explanation is that this fear of the sport of swimming is inherited from Puritanical ancestors. Swimming seems to have been considered wicked, partly because the human body in swimming is deprived of some of its excess clothing, and partly, perhaps, because bad boys go swimming on Sunday. At any rate, in the interior American states, swimming, I understand, has until very recent years been considered a subject to be discussed with bated breath.

The ignorance of all swimming affairs that prevails in the interior American towns is illustrated by the experience of the man who stepped into an Iowa department store and enquired if they kept "bathing trunks." The clerk referred

him to the manager who, after some deliberation, informed him that they had an occasional call for "steamer trunks" but that nobody in those parts had hitherto enquired for "bathing trunks."

It is needless to say that in a region where bathing trunks are confused with the steamer variety there is small chance for women to learn to swim at all. In American cities most Young Men's Christian Associations, and the more aristocratic athletic clubs, have indoor pools. A very few Young Women's Christian Associations and gymnasiums in the large universities provide such facilities for women. But facilities where the men and women may enjoy social bathing together, except in the summer time at seaside resorts, are very rare indeed. In fact, Greater New York, with all its boasted athletic facilities, has only one pool where men and women may enjoy winter swimming together.

In these days of cheap cement structures, swimming pools should be as plentiful as school houses. Of course, only the larger communities are likely to be provided with a heated indoor pool for winter use, but even the smallest country town, if it have any enterprise, can be provided with a summer open-air concrete pool at a very reasonable cost. The building of a natatorium is not

a difficult matter, and if you would ask your city authorities to obtain a figure as to the probable cost, they would be amazed at the low cost of erecting a proper natatorium.

The swimming pool is the finest sort of a training equipment for making expert swimmers and, in fact, the pool is the only means of developing good women swimmers in interior cities. Philadelphia turns out more good swimmers per capita than any Eastern city, though her outdoor bathing facilities are far inferior to those of New York, or other seashore cities. Philadelphia, however, has many finely equipped indoor pools, and it is in these pools that the girls have received their early training, under the watchful eyes of competent instructors who have brought into play every scientific point that would prove of aid to speed or endurance.

Swimming on the Pacific Coast is developing rapidly. If the teaching of swimming were adopted in the public schools, California would soon become famous for its swimmers.

Scarcely less absurd than the failure to provide any swimming pools is the wholly inadequate location and equipment of many of those in existence. Swimming alone is a great sport in the surf or in open lake or stream, where there is some

room and distance, but a little cooped-up indoor pool is scarcely more than a communal bathtub—unless it is provided with proper facilities for diving and acrobatic work over water.

Many of the so-called pools I have seen in America are but dank and gruesome tanks, which remind one of the barn cellar after a flood. The only decent material for swimming pool construction is cement painted white, or cement faced with tile. This applies both to the pool itself and to all floors and walls surrounding it. Wooden walls and ceilings are an abomination. A big skylight is a splendid asset for an indoor pool.

All pools should be provided clear around the pool with a hand rail, a few inches above the surface of the water, and a proper trough for expectoration. The walk around the pool and the steps above the water should be faced with cork flooring slabs, made for this purpose. Such cork slabs are set in solidly as part of the floor and are much more desirable than movable rubber matting.

It is needless here to elaborate upon the necessity of shower baths and the insistence upon their use prior to using the pool. Likewise, I shall not attempt to go into the systems of heating, renew-

ing of water, or the relative value of chemical and filtering systems of cleansing the water.

Public pools should always be shallow at one end and about eight or nine feet deep at the other. A good pool should be at least sixty feet long and thirty feet wide. The pool should be emptied and cleaned once a week. The temperature of the water should be seventy-two degrees.

The great majority of springboards in America are too near the water. There is practically no art possible in diving from a board one or two feet above the surface of the water. If it is necessary to encourage amateurs who are afraid of a fall of four feet, let them learn to dive off the edges of the pool, and place the lowest springboard at a height of four or five feet, where it begins to be useful.

A second board should be placed at a height of ten or twelve feet, and a third one at a height of at least twenty feet. This last height should not be a springboard but a solid platform.

Diving places higher than twenty feet will not be sufficiently utilised to warrant the required space for them in public indoor pools. In outdoor pools higher diving facilities are at least harmless, as there is no more danger of people's diving from a height great enough to hurt them,

than there is of their jumping off a skyscraper. The instinctive fear of falling from a height is so great that people never overcome it until possessed of a sufficient confidence in their diving ability safely to venture the height in question.

I do not mean by these remarks to encourage foolhardly people to jump off high bridges or otherwise throw themselves into the water until they have learned the rudiments of swimming and diving by easier stages; but I repeat that the danger of diving from heights up to thirty-five feet is absurdly overestimated.

The small boy early learns in his swimming experience that to fall flat upon the water gives him a sharp stinging pain. The pain is all in his skin, but it serves to stimulate his imagination and he conjures up tales of internal injuries which have no existence except in small boy folk lore.

Wherever possible, springboards or diving platforms should be provided with a twenty-five or thirty foot horizontal runway. There should be no down pitch in this runway, but it should either be on the dead level or with a very slight up pitch.

In addition to springboards and a platform, a permanent horizontal bar located about ten feet

over the water makes a splendid piece of apparatus. But best of all for general sport is the overwater trapeze. This may be swung at any height, but will probably be most used and give the greatest general satisfaction if the trapeze clears the water about twelve feet. This is a height that will be used freely enough, as when one hangs from the trapeze the feet will only be five or six feet from the water. The higher the ropes are attached and the greater the length of the swing, the better. The ropes should not be parallel but spread six or eight feet apart at the top which keeps the trapeze from twisting.

For those who own, or who are planning to own, country homes, the private swimming pool is a luxury that need represent no more outlay than an automobile—and water to run it is a good deal cheaper than gasoline. The private home swimming pools may vary in expense from the outdoor pond that should be on every well-equipped farm to the glass roofed natatorium that is considered to be an essential feature of the most up-to-date millionaire's mansion.

It is not worth while discussing here the fitting up of natural pools in streams, lakes and ponds, except by a few suggestions in regard to their equipment.

An inexpensive springboard may be made of seasoned Carolina pine. The board should be made of several members bolted together, rather than of a single board, for reasons of safety and of durability.

The pool will be more useful if provided with springboards at two or more heights; and a "slippery slide" or a trapeze made from a tower of four telegraph poles are devices that the mechanically-minded man can construct at an expense of twenty or thirty dollars.

Where the pool is to be filled from a piped water supply, it will be necessary to have it constructed of cement. A knee-deep wading pool for kiddies may be made of cement at a cost of only one or two hundred dollars. To get one deep enough for big folks to swim in will require an investment of perhaps four or five hundred.

Sunshine is the greatest asset for an outdoor pool. A sunny location should be chosen; in fact, wherever possible the pool should be built on a hill or elevation. Sunshine and a stream of fresh water, running through the pool at all times, will purify the water more than could any amount of chemicals.

For those who can afford artistically planned grounds and garden, the swimming pool should

be included as part of the general landscape effect, and may be set about with suitable shrubbery and provided with a fountain. Many of the fine homes in California are now so provided with outdoor garden pools. Such pools in Southern California are sufficiently warmed for most of the year by the rays of the sun. For rigorous climates, the pool may be combined with the green house or conservatory with the most splendid artistic effects. Not only does the swimming pool become an essential feature to the complete beauty of the conservatory, but the two may be most economically warmed by the same heating plant.

A swimming pool may even be worked out within the residence, as in many California homes where the pool is located in the central court of the house. Of course, swimming pools located in connection with the residence must be kept spotlessly clean. They should have outlets from which they can be completely drained at any time. Where the water supply is plentiful there is nothing superior to running fresh water for the sake of cleanliness, but in case of emergency, the pool can be sterilised by the use of a pound of calcium hypochlorite to every 100,000 gallons of water.

Many a farm and village home that considers the luxury of a swimming pool entirely out of

reach financially, will find that with a little ingenuity one can be provided at a very reasonable figure. Nowadays a water supply can usually be secured very cheaply by the use of a gasoline pumping engine, and on any well-kept farm, even in the Eastern states, I am told that it is highly profitable to irrigate the garden. Then why not locate a swimming pool on land a bit higher and use the water from the emptying of the pool for irrigation—thus making the cabbages and beets pay for the swimming facilities?

PART IV

FANCY SWIMMING AND DIVING

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CHAPTER XI

WATER TRICKS AND WATER SPORTS

SWIMMING must not be taken too seriously; after you have mastered the art you should seek relaxation in the water by doing some of the tricks which add to the joys of swimming.

Especially in public entertainments, such as fairs, carnivals, etc., where a part of the programme consists of a swimming exhibit, there is a demand for the unusual and spectacular. The professional swimmer must therefore be armed with a considerable number of water tricks that are something more than the ordinary amateur stunts performed by country boys in the "old swimmin'-hole." In this chapter a description is given of the tricks and freak stunts that are suitable for this purpose. By a careful study of these descriptions and the accompanying illustrations, any good swimmer can learn to do them passably

well, and with sufficient practice may become an expert trick-swimmer.

I shall give the easier ones first; but it should be borne in mind that some of these tricks are not for the raw amateur. They are the exhibition stunts of the professional in the water. If they could be done by every one they would cease to be attractions and become ordinary stunts.

Don't try to exhibit your entire repertoire of tricks at a single performance. Five or six—or at most ten—good tricks are usually sufficient for one performance unless your act is the whole show. It is always good policy to keep something in reserve and to be able, if required, to give an entire new show at each of a series of performances.

The Steamboat or Old Back-Wheeler.—In order to do this properly enter the water and turn on your back and float. Keep the hands against the hips and work the feet up and down, "slapping" the water vigorously with the legs from the knees downward. Keep the legs "limbered." Do try hard to overcome any stiffness in the water. With a little practice you will be able to propel yourself speedily. Try and make a big splash with the feet, let them come out of the water.

The Rolling Log.—The log-rolling trick con-

sists in rolling on the surface of the water like a log in a cross-current. First assume the floating position with arms back over the head. Fill the lungs with air and hold it for buoyancy. Then roll along, by the same muscular movements as you would use in rolling on the ground. If you are inclined to be fat, you will find it easier than if you are thin. It can be done, however, by any one who can float.

The Corkscrew.—This trick is begun from the position of floating on the back. It is somewhat similar to the "rolling log," but in the latter the body remains stretched out and comparatively rigid. In a corkscrew the body is bent up and the side revolving motion is gained by reaching over across the front of the chest with the arm and starting the stroke, turning at the same time. In the rolling log one rolls sideways, whereas the corkscrew, as its name implies, combines a rolling motion of the body with a definite forward progress.

Mother's Old Churn.—This is an imitation of the old-fashioned barrel churn with which New England housewives manufactured butter before the modern method was invented. If you have ever seen one of these old barrel churns engaged in working at its trade, you will have no difficulty

in understanding the motion required. The body is neatly folded up with the knees hugging against the breast, and the lower legs against the thighs. The body is face upward of course and only the face shows on the surface. The arms are held at the sides, elbows back, and the performer turns rapidly over and over in a succession of somersaults forward and then backward, alternating. Only the forearms and wrists move.

Spinning the Top.—In spinning the top the performer rests on his back with only the face showing above water. The legs are doubled up with the knees brought up against the abdomen. The elbows are thrust backward, with the hands at the sides. Then pushing the water forward with one hand and backward with the other, with a fast sculling stroke, he spins round in one spot, just as a rowboat will turn, if the rower pulls with one oar, while he "backs water" with the other.

The Bicycle.—This is an imitation of riding a bicycle around in a small circle. The performer works on his side, maintaining himself rather high in the water by means of a vigorous underarm movement, while his other arm is held out of the water, bent in the same attitude as if he were holding the handle bar of a wheel. The progress

in a circular course is obtained by a lateral movement of the feet, somewhat similar to the side sweep of a fish's tail.

The Wheel.—To do the wheel, dive into the water and as your head comes to the surface, throw yourself backward with the arms still in diving position, body sharply arched and legs thrown well back so that the whole body forms a half circle. Do a backward dive, coming up again in the same place as before, and continuing the movement, giving the effect of a wheel turning in the water. Make the complete turn three or four times. Breathe in as the face comes to the surface on each turn, and exhale through the nose while under water.

Two Man Somersault.—The two man somersault with locked hands is one of the most difficult of the exhibition stunts, and will attract attention. It requires two performers who face each other treading water and holding hands. At a signal they bring their feet up suddenly, doubling up as compactly as possible and each turning a complete forward somersault, without releasing hold of the other's hands. This stunt requires a high degree of acrobatic as well as swimming ability; it is not unlike skinning the cat on the horizontal bar.

Marching.—I think the official name of this stunt should be changed. It is not really marching at all since in doing it the performer is lying on his back. In this position he propels himself forward—feet foremost—by a movement of the legs which is only slightly similar to the motions of walking and there the resemblance ends.

Walking in the Water.—While it is quite impossible to walk *on* the water without heavenly aid it is altogether mundane and feasible to walk *in* the water. Let the body sink to the verticle position with the head well out of water; then start walking, which is merely a modification of treading water, but requires far more skill. The knees are lifted higher than they are in walking on land, and each leg, after being brought forward a step, is thrust sharply backward against the water, while the other leg is brought forward for the next step. In this way forward progress is made. Its chief difficulty is in maintaining the vertical balance in the water. There is a decided tendency of the body to fall backward or sidewise, but this can be overcome by proper use of the hands. They should be revolved rapidly in a circle in front of the breast, hand over hand, the edge of the hands being presented to the water on the outward circle, while they are cupped with

the palms toward the breast as they are brought back, thus pulling the water toward you and aiding your forward progress. The forward movement is slow, but it can be continued for a long time, and a considerable distance covered without fatigue.

The Propeller.—In doing the propeller, the performer first assumes the floating position on the back. Throwing his arms back over his head as far as possible, with the forearms slanting down into the water, he pushes the water backward with rapid sculling motions of the hands, propelling himself feet-foremost. An expert can get up considerable speed for a short distance. It is of course more easily done in the sea than in fresh water, because of the greater buoyancy of salt water.

The Torpedo.—The torpedo is merely a variation of the propeller, except that only the toes appear on the surface. The body is slanted downward at an angle that brings the head twelve to eighteen inches under water. In addition to the motion that drives the body forward the hands must push upward sufficiently to keep the air-inflated chest beneath the surface and the feet, which are heavier, planing to the surface. For a performer who carries any considerable

amount of excess baggage in the form of adipose tissue it is not as easy as the propeller.

The Submarine.—To do the submarine stunt the performer floats on the back with one leg raised till it is pointing straight up at right angles with the body. This is the periscope. The

The submarine

weight of the leg in the air will sink the body a foot or so below the surface. Propel yourself forward with a sculling movement of the hands. By working the hands palms upward you can continue to sink till the periscope disappears below the water-line, then rise gradually, continuing the forward movement, till the body comes to the surface.

The Ship, Submarine and Torpedo.—The boys

in the old swimming hole should now be having lots of fun imitating the submarine warfare of European waters. I have just given you the submarine and torpedo which can be used for the occasion. A ship can be imitated by swimming on the back with the hands held out of the water from the elbows up at two different places to represent masts. The torpedo should leave the submarine and steer into the ship at full speed and, after the resulting explosion, both should sink and disappear—quietly coming to the surface at a remote part of the pond. A bright group of boys once started along this line of sport will invent many such stunts to add to their repertoire.

The Porpoise.—To do the porpoise properly requires a lot of practice, as it is one of the most difficult of stunts, but no professional swimmer can afford to omit it from his exhibition repertoire. It may be done in water as shallow as four feet, or as deep as nine feet, but the best depth is five or six feet, and the depth should be as nearly uniform as possible, with a smooth level bottom. Because of these requirements, a large tank is the best place to do it. The take-off should be at or very near water-level. ' Take a full breath and dive in, exhaling through the nose

when you touch bottom. Crouch on the bottom and kick yourself to the surface in a slanting course, snatch a mouthful of air as your face breaks the water, and immediately dive down again—keeping this up across the pool.

Deep Water Porpoise.—A similar effect, though the body does not rise so high out of the water, can be given when swimming in deep water. This stunt I am told is known in the American boy's aquatic vocabulary as "An old lady crossing the sea."

The Muskrat.—The muskrat imitation is a series of short shallow dives. The movement is very similar to the porpoise, except that the dives are not so deep, and the muskrat does not break water with a rushing splash, as the porpoise does. The hands are forward only at the take-off. Afterward they are brought down close to the hips and used in a sculling movement to provide the forward impulse. Start on the surface and after covering a short distance sink a little below the surface and come up quietly a little further on, just as a muskrat does.

Lobster (Backwards on the Breast).—The lobster swims backward. In the imitation of the lobster, the performer swims backward on his breast, thrashing the legs up and down from the

knees and sculling with the hands, which are thrust forward straight in front of him. The hands are pushed against the water, so as to send the performer backward. The legs are alternated, and come out of the water at each stroke.

Other Zoological Imitations.—There is a whole menagerie full of swimming tricks, the fun being in seeing if your spectators can recognise the particular zoological specimen that you are imitating.

To swim like a duck you will require a very strong sculling while swimming on the breast. The hands are held beneath the hips, thus playing the part of the duck's short webbed feet. Your own feet may be curled up behind to represent the duck's tail.

To swim like a crab is to navigate sidewise. It is merely a matter of reaching out with the arm and leg at one side and stroking toward the body. The more "sprawly and crawly" you can get this motion the more realistic will be the imitation—especially when done under water in a clear pool.

To swim like a frog will not require very great alteration of the strokes that some of you already know, nor will I try to coach you in a closer imitation, as the frog itself will be a better teacher.

To swim like a seal may be made a more graceful and pleasing trick than some of these others. The feet are crossed as one comes to the surface to represent the seal's tail and the chief peculiarity of this animal's beautiful swimming which you are to imitate is the rolling motion as the seal comes to the surface. This is indeed a very graceful thing as the seal performs it, but quite a difficult trick for the human being to imitate. You should swim beneath the water and drive hard toward the surface, and just as you shoot out, press the hands by the side and roll over on the back. Then after catching the breath, with a downward jerk of the head and another twist, you disappear beneath the surface.

The Pendulum.—This is a "grandfather's clock" stunt. The first position is on the back with hands clasped extended above the head. The feet are slowly lowered and swing backward, passing through the verticle plane and going on back until they again appear on the surface and the body rests breast down in the water. Now reverse the movement and return to the original position on the back; repeat for as many swings of the pendulum as you care to make. To do it well requires a very expert floater.

Both Feet High Out of the Water.—If your

sculling education has not been all it ought to be, you will not be able to do this stunt. The performer works on his back, with his face and the feet and legs as far as the knees, above water. The knees are brought back as close to the breast as possible, and the feet pointed straight upward, while the hands are held beneath the hips and used in sculling. The motion must be both rapid and powerful. It is not an easy stunt.

Waltzing in the Water.—This is done with the aid of the trudgeon stroke, and those of you who have mastered the trudgeon should be able to waltz in the water with ease. Instead of continuing the double arm movement after the right arm has started on its swing bring the left arm out of the water and with the same kick you now use, revolve the body so that the left arm swings over the body. As you turn force the arms into the water with a full sweep and you will be surprised at the simpleness of this movement. Everything depends on the revolving of the body, which I am certain you will not be long in discovering.

Side Floating.—This is treated in the chapter on water stunts instead of being considered with ordinary floating because it is quite difficult to accomplish. The difficulty is in keeping the body

well balanced. Take the back floating position. Turn the head so as to have either side of face on the water. As soon as you have turned sufficiently balance by moving arm or leg backward or forward. When you have the proper position, straighten out upper leg so as to lie directly over the under one and the upper arm to repose upon side. Be sure to avoid tension. The lower corner of the mouth should be laved by the water and no tension of the neck muscles permitted. Breathe in as you turn and do not exhale until you are properly positioned.

Over and Under.—This is a trick for two performers. At first they float side by side on the back. One of them slowly paddles ahead and the other reaches up and grasps the front man's ankles with his hands. The rear swimmer takes a deep breath and quickly lowers himself until he is an arm's length beneath the surface, holding the upper swimmer by the ankles. With a quick jerk of his hands, he now shoots the upper swimmer forward directly over his own body and then allows himself to rise. If the force of this forward thrust of his partner has been just right, the sunken swimmer will rise to such position that his ankles will in turn come within the easy grasp of the man who was first shot forward. This

man in turn now grasps hold of the other's ankles, and the operation is repeated with the subjects reversed. As each swimmer gets a full breath while floating on the surface, the trick can be kept up for a considerable time and forms a very astonishing spectacle to the uninitiated.

Swimming in Full Dress.—At a swimming exhibition, much sport may be occasioned by expert swimmers apparently "falling" into the water while dressed in conventional clothing. Of course they are prepared for the occasion and have a bathing suit beneath. The farce is usually completed with an exhibition of disrobing under water. This in itself is excellent practice, because of its great value in case of accident, as when a boat sinks, or for rescue work.

Undressing while in the water is not at all easy, but it is well worth some practice. Getting the coat and vest off is comparatively easy and can be done while swimming on the breast or very easily while treading water. The greatest difficulty will be found in getting the clothing removed from the lower limbs and in removing the shoes and socks. The shoes can best be removed while in the position of treading water with the head thrown well back in the water. One foot is bent up by and caught in both hands and the

shoe removed in this position. It is quite difficult as you will find by trying it on dry land. If you cannot accomplish it in this fashion, the only thing to do is to curl the foot up in front, take a deep breath and sink, unlacing the shoe rapidly, then swimming to the surface again for more air and repeating until you have succeeded.

Bound Hand and Foot.—This is a spectacular and somewhat difficult swimming stunt, and can always be depended upon to get a hand when well done as an exhibition number. The bound performer may plunge into the water from a considerable height and come to the surface without a stroke. Swimming with the hands and feet tied may be done in four fashions. If the hands are tied behind the back the swimming is done on the back with feet only, which gives the back frog-kick except that the feet are kept together by the band. If the hands are tied in front, the swimmer may turn on the back and throw the arms over the head in the ordinary floating position, swimming with the feet as before. The third method is to swim on the breast with the breast-stroke, the hands being tied, of necessity coming straight down beneath the chest instead of out more to the side. The fourth method and the most unusual way is with the hands and feet tied

to turn on the back, and throw the arms backward over the head when both the hands and the feet are used like sweeps on a barge giving a wriggling effect. It is in fact the motion by which a fish swims by the side lashing of the tail.

Water Games.—There are any number of games to add variety to your swimming pool sport. You can play ball in the water with a polo ball without the aid of the rules or you can get a rule book and play the real game. Water base-ball is the still more sport—at least for the spectators—and every one will know how to play without studying the rules. It can be played in water about four feet deep, or it can be played in deeper water by having floats for the pitcher, batter and catcher. The bases are little floats and basemen, batters and fieldmen must swim.

Tugging the rope is more fun on water than on land. Floats should be used to keep it up. Water blackman or pom-pom-pull-away is played in a pool much as in a schoolhouse yard. One swimmer is the "blackman" and all the others race across the pond. The first man caught is blackman for the next game—after all the swimmers are caught. Another good one is a wrestling match of four men played in water up to

the armpits with the wrestlers astride the carriers' shoulders.

Some Laughable Races.—The crocodile race is played by two teams, each man swimming with hands on the hips of a swimmer in front. In another sort each man grasps the head of the swimmer behind with his feet. Alternating these two races will give plenty of exercise to both legs and arms.

Obstacle races or water hurdles need no further explanation than their name implies. Get as great a variety of obstacles as possible—some to be climbed over, some to be dived under.

Old clothes races with dressing either in the water or on land as part of the race will always be amusing. A little more serious aspect can be given to such races by towing a "victim" ashore.

The egg-and-spoon race is as good in the water as on land. It can be played with the rule that the swimmer is out if he spills his egg, but perhaps more fun will be occasioned, if the water is clear, to allow him the privilege of diving and recovering the egg. But the best of all for the indoor pool is the "lighted candle race," and it will be still more fun if the lights are turned out in the room.

Here is a test by which you can judge how you

are coming on toward the expert class in water arts. It is the list of performances taken from the English Royal Life-Saving Society's examination for swimming teachers. This test in addition to a regular examination in theory of swimming and life-saving, involves the following simple tests—and all of them are quite easy.

To be dressed in addition to your swimming attire in an ordinary walking costume, minus coat and jacket, and while in such dress "rescue" a person and swim with him for a distance of at least fifteen yards.

To jump into deep water with ordinary street clothes and to undress while swimming.

To swim each of the following strokes for three minutes each—twelve minutes in all: On the breast, on the back using both arms and legs, on the back with arms folded over the chest, and overarm side-stroke.

To dive from the surface of the water to a depth of at least five feet and raise a five pound weight.

To float motionless on the surface of the water for at least thirty seconds.

To dive from a height of five feet and of twenty feet.

To plunge a distance of not less than forty feet.

To swim by the means of the propeller a distance of thirty feet.

To turn in the water two somersaults forwards and two backwards.

Here is another test list to judge how modern a swimmer you have become. It is the list of water tricks published in Thevonot's swimming book. If you can do these tricks you would have been the idol of small boys who lived one hundred and fifty years ago. The difference between this old-time book of hints and those in the present volume may be taken as a measure of our progress in aquatic sports.

This list includes the following:

Turning from left to right, turning somersaults, swimming, a modification of the breast-stroke, with the hands joined together; swimming with the hands held or tied behind the back; swimming and holding one foot with the opposite hand; swimming like a dog; swimming to keep one foot at liberty above the water; swimming with the feet tied; sitting (floating) in the water; turning in a circle with either the head or one foot in the centre of the circle; swimming with both hands held out of the water; putting on one's

boots in the water; swimming fifty paces under water (the modern record is three hundred and forty feet); and last of all and funniest of all is "cutting the toe-nails under water."

CHAPTER XII

LEARNING HOW TO DIVE

OF all the arts practised by swimmers, the most beautiful and graceful is the art of diving. Despite the widely prevalent impression that diving is exceedingly dangerous, one rarely hears of any injuries or loss of life therefrom. In fact, it is much safer than most sports of the spectacular and seemingly daring nature. To the careful diver who masters the art one step at a time, the danger is indeed so small as to be no argument at all against this graceful and pleasing sport.

In learning to dive, as in learning to swim, the first object is to overcome fear. One may be perfectly at home in the water, but if he has never done any diving, he will have the same fear of leaping from a height that he at first had of entering the water.

This fear cannot be overcome all at once. It must be accomplished gradually. The pupil must first become accustomed to the feeling of being

under the water. He should not, at first, leap in from any height, not even from a low pier.

Wade out till the water reaches your armpits. Then take a full breath, jump upward and at the same time throw the head forward and downward, and try to point your feet toward the sky. As soon as the plunge is made, throw the head back and swim under water, using the breast-stroke and frog-kick. A few strokes will bring you to the surface.

On the earliest attempt you will probably have a little trouble with strangling. This will result from improper breathing. It is an experience that all amateur divers pass through in their early practice, but do not let it alarm you. Try it again, taking a full breath before diving and holding it as long as you can while under water. When you can hold it no longer, exhale slowly through the nose before coming to the surface.

You will find that you can remain under water only a few seconds at first, but as you gain experience and confidence and learn proper control of your breathing, you will be able to stay under a great deal longer without discomfort. However, the length of time you can stay under water is of comparatively little importance in ordi-

navy diving for pleasure or exhibition purposes, as one normally rises to the surface in from two to ten seconds. The only real necessity for long stays under water is in life-saving work where it is sometimes required of the rescuer to dive to a considerable depth and be able to remain down for some time in locating a drowning person.

In diving, the object should be superlative grace and beauty. When this has been acquired, every movement will be perfectly timed and executed with absolute precision. Watch the skilled professional diver,—especially the woman-diver, for women are generally more graceful divers than men—and no matter how often you see her do the same stunt you will not be able to detect the slightest difference in the way it is done at different times. And you can do as well if you will keep at it faithfully. She goes through the same set of motions, always in precisely the same time and in the same space, unvarying as if she were a machine. Such perfection is the result of careful training and persistent practice.

Whether you are a beginner who needs some one to help and encourage you, or an old hand at diving who wishes to assist novices, these hints will be equally helpful. In diving, as in swim-

ming, the beginner's greatest difficulty is to overcome needless fears. He has the impression that diving is more difficult than it is. Instinctively fearing a fall from a height, and especially a fall head first, the novice wants to begin diving from steps or the edge of the pool at the water level. Now to get turned completely over in this short distance requires considerable acrobatic ability. Lacking this the beginner merely falls forward and hits the water with a flat awkward slap that makes a very ungraceful splash and may give the skin a smart sting.

The thing that must be learned is to get the head down and the feet up. There are three tricks that will help you quickly to acquire this essential. First permit no beginner to dive from a take-off less than two feet (nor more than five) from the water. Such a fall cannot hurt him any more than a friendly hand slap and will be less likely to hurt at all because this little height makes it easier to get turned for the head-first water entry.

The second trick is to hold a stick about three feet above the spring board and thirty inches in front of the diver. Tell him to pick out a spot in the water and dive over the stick and hit the spot with his head. The stick does two things: it

keeps the diver from losing his nerve and jumping instead of diving, and it makes him keep his legs out straight, so his bent up knees won't hit the stick. When one gets the feet up enough to clear the stick, he is pretty sure to get the head down for a head first entrance.

The third and surest method of teaching confidence will work for pupils who cannot even muster nerve to dive over the stick. Have the pupil stand on the edge of the take-off on one foot. Let the other leg be kept straight and let the instructor slowly bend it back and up. The pupil will be forced to lean the trunk forward, and by about the time the trunk reaches the horizontal position, he of necessity has to dive, or rather fall into the water head first. It isn't very graceful work, but it will soon build up enough confidence to enable the pupil to take the proper leap for the head-first dive.

Do not start to dive with the hands in the attitude of prayer. The palms should always face front, never face each other.

You will soon learn that there can be an overdoing of this effort to get the head down and the feet up. The body keeps on turning and when the height increases it will go on over, and you will get an ugly fall on your back. Do not give

the head a sudden forward duck as you dive, for this increases the tendency to "throw over" on the back.

The grace of diving is in all five parts of it. These are:

First, the poise for the dive.

Second, the flight through the air.

Third, the way the body cuts the surface of the water.

Fourth, the course and the action of the body beneath the surface.

Fifth, the way the diver breathes and swims when he rises to the surface.

Diving as an exhibitional art can be spoiled by inartistic work at any one of the above stages. I have seen Swedish divers make the most wonderful aerial flights, cut the water like a knife, and then spoil it all by coming up floundering, coughing and spitting in sheer indecency. It makes one think of what one sees behind the scenes when the curtain is rung down at the end of a fine piece of acting—and the actor folk begin to settle their personal grievances while robed and posed with Shakespearean dignity.

The dive may be either deep or shallow, as the diver desires. Its depth is controlled by the position of the hands, which act like a forward rudder

on an airplane that controls the up and down dip of the machine. In diving the hands are pointed above the head, in line with the body, palms downward, thumbs and fore-fingers touching. As the body enters the water, the hands are bent backward from the wrist. If you want to make a long arc in the water, bend the hands only slightly. If you wish to make as short an arc as possible, turn the hands up as far as you can. If the hands are kept straight instead of being turned up, you will keep on going down till you strike bottom, or are checked by the resistance of the water.

The depth one descends into the water will depend upon the height from which the dive is taken and the skill in this dip that causes the force of the descent to bring one again to the surface. It is surprising how quickly the natural resistance of the water will stop the body. To go down more than twelve or fifteen feet without actually swimming down is quite impossible.

For trained divers, eight feet of water is sufficient even for heights of twenty or thirty feet, and daring expert divers have dived from fifty and seventy-five feet into four or five feet of water. But this is a sort of diving that is indeed dangerous, and before the diver attempts such

Diving head first

shallow water he should know that in actual practice he never goes deeper.

Deep diving is done by swimming downward. Records of fifty and sixty feet are common. Pearl divers are reputed to go down twenty fathoms (120 feet).

When you are on the bottom in deep water, always remember that a push with the feet on the bottom, accompanied by a vigorous downward sweep of the cupped hands, will shoot you to the surface quickly.

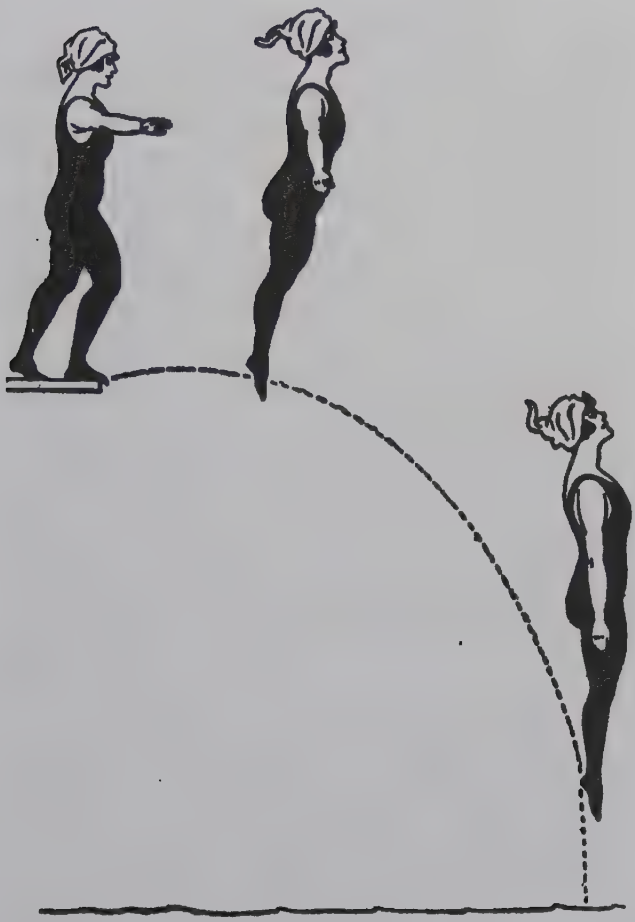
Diving properly refers to the act of plunging into the water, but the term is often used to mean a swim under water. Swimming under water is really a sport in itself, and is well worth while for practical purposes because of its utility in locating a victim who is drowning. The stroke under water is the breast-stroke, but the hands are thrown more backward and the head kept ducked down, so as not to raise the body to the surface. With practice one learns to gauge the depth by the pressure. You should also learn to keep the eyes open under water. When swimming for distance, you should swim near the surface.

Competitions of swimming under water are excellent sport, but the will power may occasionally be utilised to an extreme degree, which may

actually result in injury. While the record for holding the breath under water when one is quiet is something like four minutes, the ability to hold the breath while engaged in violent swimming movements is limited to about two minutes. A record of 340 feet for swimming under water was made by an Englishman in 1882—quite a remarkable swim. My own distance is three hundred feet.

Competitions for distance in swimming under water should have a time limit of two minutes; that is, the swimmers should understand that continuing to struggle slowly when one is near the point of suffocation is not desired in the sport.

Harrington Emerson, the well-known efficiency engineer, uses swimming under water to illustrate a fundamental principle of efficiency. He tells of talking to a boy two days before a water sports meet. He asked the boy why he did not enter for the under water swim, and the boy replied that he was not in training. But Emerson learned that the boy could swim under water, and told him that if he would do exactly as told, he would win the event. His instructions to the boy were that he could and should hold his breath two minutes; that he should practise timing his strokes until he swam twenty strokes



Diving feet first

to the minute; then, on entering the race he should dive and swim his forty strokes, whereupon he could rise to the surface and would find that he had won the race. The boy obeyed instructions and won the race over competitors who had been long in training, but who had no such system to determine just what they could do.

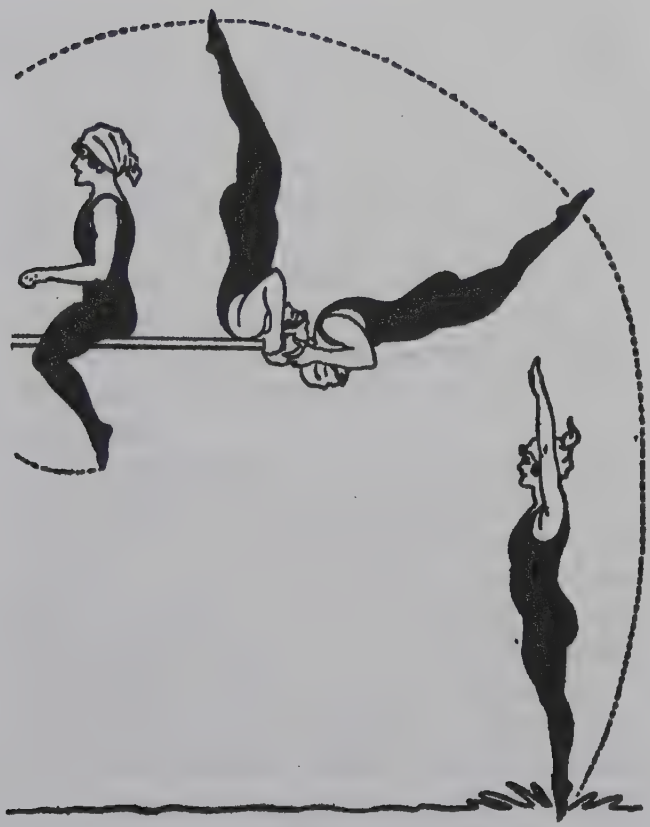
Porpoise diving is my name for sudden disappearance beneath the water while swimming. To be done gracefully, the head and shoulders should be raised slightly by pushing down on the water with the palms of the hands. Then the head is plunged beneath the water while the hands make a good strong whip to pull the body downward. The feet should be kept quiet for a moment and should not kick and churn desperately on the surface of the water.

In the long plunge, the diver goes only a little way below the surface, describing a long, shallow arc. As in all head-foremost dives, the hands are palm down, thumbs and fore-fingers touching. The course of the body in the water is determined by the position of the hands. They should be turned upward from the wrists, so as to plane the body to the surface. After rising to the surface the body continues to drift forward from the impetus of its start, like a ship af-

ter the power is shut off. As this is really a floating stunt, the body being on or near the surface, except at the first plunge, it is a favourite of those who are blessed (?) with an excess of *embon-point!*

Plunging for distance is a recognised competitive stunt. The record distance is eighty-one feet. The official rules for the long plunge are as follows: "The plunge shall be a standing dive, made head first from an indicated firm take-off (i.e., diving base free from spring). The body shall be kept motionless—face downwards—and no progressive action is to be imparted to it other than the impetus of the dive. The plunge shall terminate (if the competitor's face has not already been raised above the surface of the water) at the expiration of sixty seconds, or such other time as may have been previously announced by the promoting body. The duration of such plunge shall be reckoned from the time the competitor dives from the take-off."

What is known as the dry-back plunge is not really a dive at all, as it is done entirely on the surface of the water, the object being to skim over the surface without wetting the back. To do it properly requires considerable practice, as it is much more difficult than the down-into-the-



The neck dive

water dives. If the start is made from a springboard, it should be one located very near the water. A better start may be made from the edge of the pool. Take a very deep breath, being sure to fill the lungs to their greatest capacity, as the trick requires the utmost buoyancy. Lean forward over the water, swing the arms up over the head in diving position, and spring out as far as you can, giving a smart push with your feet on the end of the springboard or the wharf. The head is kept between the arms and the face submerged.

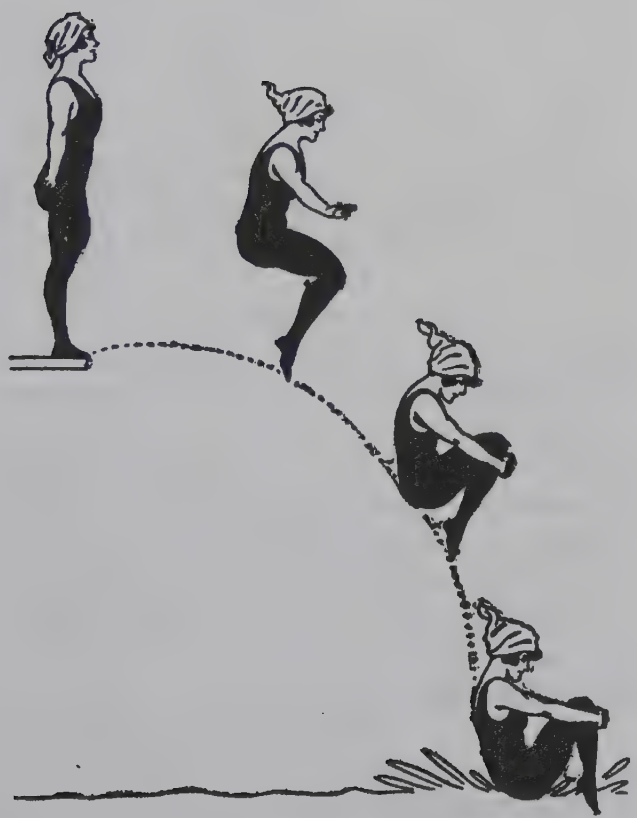
Some diving instructors do not permit feet-first diving or jumping at all, but there is no need of ruling out the feet-first entrance, as there are a number of graceful aerial flights that can end in no other way. But that fact does not need to encourage miscellaneous jumping into the water in all sorts of awkward feet-first positions.

The proper feet-first entrance is with the body straight as an arrow. The legs must be stretched out full length, kept tightly together, and the toes should be pointed down to hit the water before the heels. The arms may be in either of two positions; held close at sides, points of fingers against thighs, or held straight above the head.

The position of the face is important as there

is more likelihood of hurting it in the feet-first entry than with the regular head-first diving. The trouble comes from looking down to see where you are going and forgetting to turn the face back again. The face should be tipped back so that the breast and the chin break a path for the nose and eyes, otherwise in high jumps there would be unpleasant results. For very high drops, it is advisable to enter water with the arms up along the temples, which serves to lessen the impact on both face and ears. The arms may be kept down or even held our horizontally during the air flight and thrown up just before hitting the water. Any change of position after the air flight for a different water entry gives the effect of knowing your art, and not merely being engaged in falling off a springboard into a tank.

Plunging feet first is more difficult than head first, but from a running start a goodly distance can be covered. As you leap, the body is thrown back, arms held over the head, and the feet shot forward, so that the body strikes the water in a nearly horizontal position and with the feet foremost. The body continues to plunge and then drift more slowly, but without the aid of swimming motion.



The "Australian splosh"

The dive from a sitting position seems quite astonishing to those who have not practised it, but it is very simple. To make it requires that the object on which you sit should be free from obstruction beneath, so that you can swing the legs back. The dive is made by raising the legs up a little and snapping them back and falling forward. This back snap of the legs will turn the body sufficiently for you to strike the water head first.

The neck dive is really very easy. It is a feet-first water entrance, similar in form to the back somersault. One sits astride the springboard just far enough from the end so that the head will project beyond the end of the board. Now swing the feet up quickly until you stand on your neck and shoulders—only don't stand there, go on over with just enough force to bring you erect, head up, as you hit the water with the pointed toes. As in all feet-first water entries the hands may be held either close against the sides or straight up over the head.

Just as the most serious drama usually has one laughable character, so a diving exhibition often needs a little farcical stunt by way of contrast. The "Australian splosh" supplies the need. The air work must be done as neatly as

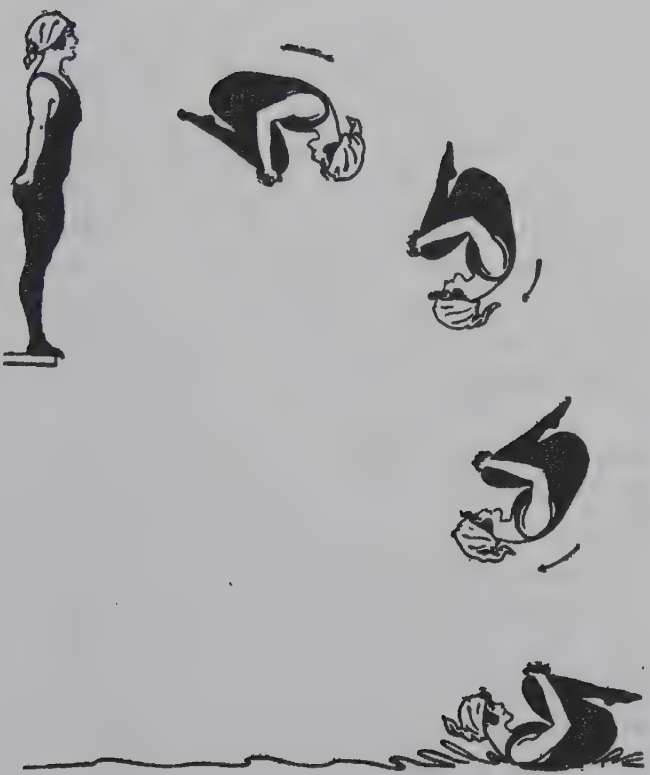
at any other time—no haphazard flopping in diving even to get a laugh. But in entering the water, instead of trying to get as little splash as possible, try to get as much as possible.

To splosh properly face out on the board and jump up as high as you can from a standing start. Quickly draw your knees toward the chest, and grip the arms around the shins, hugging the heels against the back of the thighs; with toes pointed sit down on the water as hard as you can. It is safe up to fifteen or twenty feet.

In the "honey-pot" or "cannonball" dive, care must be used to avoid turning a complete somersault. The diver springs upward from the board, brings the knees up as close to his breast as possible, and doubles his lower legs back against the thighs, clasping the legs a few inches below the knees with his hands—makes himself into a ball.

This dive is similar to the "Australian splosh," but there is more of a forward turn and the back of the shoulders strikes the water for the splash.

The "dead man" or "wooden soldier" dive also is easy. It may be done from a springboard about twelve feet above the surface, and the water should be amply deep, as the body goes straight down till it is checked by swimming motions or the resistance of the water. The diver



"Honey-pot" or "cannonball" dive

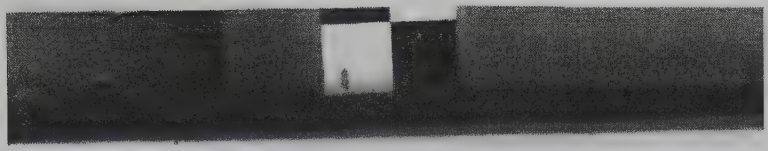
stands on the edge of the pier—or springboard—in the position of the soldier at "Attention," holding every part of his body rigid as he topples forward and descends head-first with hands at side, limbering up as he strikes the water. He makes no effort to control the course of his body in the air, but simply falls head downward vertically, as if he were in fact a "wooden soldier." The stunt is more interesting when done by two divers, each holding to the other's ankles with the hands. Obviously, one man stands on his head to start the fall, but as they tip through the air the positions are exactly reversed.

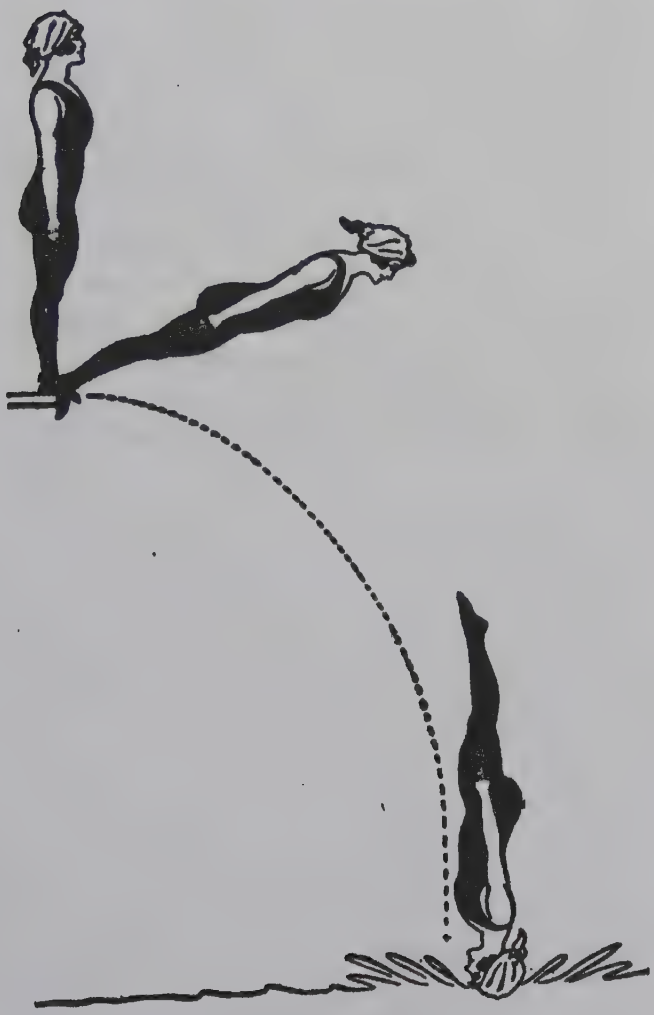
For the back dive, you should stand with your back towards the end of the board and fall off. It looks easy, but nine out of ten who try it will go on over too far, making an abortive back somersault out of the attempt. You must keep the legs straight and not bend up the knees and slap the water with the thighs. The back dive is finished in two fashions; after striking the water in the back dive, the pointing of the hands ordinarily carries you back under the springboard, and you come up on the breast as in ordinary diving. But in the "back dive and circle out," the hands are bent the opposite way and

you circle out and come to the surface on the back.

A very pretty and comparatively easy dive is what is called the drop dive. It may be done at any height from twelve feet upward, but the greater the height the better, as it is easier to get the head down when starting from a height of forty or fifty feet or more, than it is from twelve or fifteen feet. A board or pole projects out over the water at the level from which the drop is to be made, and the performer hangs to the outer end of this by his hands, facing outward toward the water. Letting go, he drops feet foremost for a short distance, but throwing himself forward as he falls, turns head downward, straightens out and enters the water head foremost, as in the plain high dive. The principle by which one turns in the air is fully explained in the following chapter.

If we look at diving as a fine art, women surpass men. If we look at it as an exhibition of foolhardiness and brute strength, men will of course surpass women. In the play "The Daughter of the Gods," I dived from a hundred foot tower. It was a risky thing to do, not only because of the height and a strong wind, but because I had to leap far out to clear a ledge of





"Wooden soldier" dive

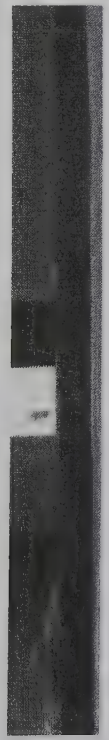
jagged rocks that projected beyond the base of the tower. In descending that distance, a man would have cleared those rocks by fifteen feet because of his actually greater jumping powers—I don't pretend to be as strong as a trained male athlete. Well, I cleared those rocks by only three or four feet, which is as close as I want to come. Or take the tank I used in the New York Hippodrome—a man could jump clear over it. A man dives like an athlete or an acrobat; a woman's diving is sheer grace—or ought to be.

CHAPTER XIII

EXPERT AND FANCY DIVING

AS a child we all wondered how kitty turns over in the air, always alighting on her feet. Calling it "instinct" or "nature" isn't sufficient explanation. Moreover, the cat doesn't give herself a kick with her feet as you drop her, for scientists have carefully hung cats feet uppermost, suspended by a single thread, and then burned the thread, and just the same kitty would land on her feet. Yet you can make a cat fall on her back and fall hard. Get her to playing or sleeping on a trick table and viciously pull the support out from under her and a cat will fall as awkwardly as a drunken man.

Here is what the cat does when you hold her feet uppermost. She twists her head as far to one side as possible and holds it there. The instant you let go, she twists her head back in the other direction. The momentum of this head twist starts the body twisting in the same direction in a speed proportionately slower, as the



THE AERIAL FLIGHT IN THE SWALLOW DIVE.

whole body is proportionately heavier than the head.

The principle used by the cat is used consciously or unconsciously by every skilled fancy diver and flying trapeze acrobat—but not to my knowledge has the explanation ever before been published. All other books simply tell you to "turn in the air" as if one could will it so. Yet human beings lack the cat-like instinct and must slowly learn their tricks of aerial turning.

For starting these body turns the legs, arms or head may be used. They are effective in the order named.

To get a demonstration that will quickly convince you of this principle, hang over the water from a bar of a trapeze or limb of a tree. Now bring the feet forward till they are bent at an angle of forty-five degrees from the perpendicular. At the instant you let go the trapeze, snap the legs back vigorously. As a result you will turn over in a forward somersault.

Repeat the same experiment with the legs straight, and just as you drop, jerk them forward. This time you will do a back somersault. It must be the action of legs, for you cannot push against a trapeze with your arms, as it is free swinging and would offer no resistance. Now

try one more. Stand on a springboard with your arm held as far down and back as possible, give a jump straight out as if trying to jump forward on a floor; but at the instant you jump, bring the arms forward as powerfully as you can. The result will be the start of a back somersault. As the human neck muscles are weaker than the cat's, the head jerk will not easily give sufficient impetus to effect a complete body turn, but it can easily spoil one. You remember I told you not to duck your head in the forward high dive. It is that ducking of the head which gives you the extra motion that results in those unwelcome throw-overs on the back.

A modified form of this principle which is used in acrobatic tumbling, and which might be permitted in learning diving, but hardly in exhibition work, is "cutting" with the hands. Thus in the forward somersault, the tumbler has trouble getting around far enough to get his feet under him in time. So while in the air he brings his palms down with a strong blow against the front of his ankles, and the impact drives his feet further back under him. The action is reversed for the back somersault.

The springboard action increases the power of the jump and enables one to get more whirling

"Swallow" dive

power for acrobatic tricks in the air. The springboard is of great service at heights of from four to twenty feet. Above this height it is not to be trusted, as its action is never as trustworthy as that of the unaided human muscles. Hence, in high diving above twenty feet the take-off should be from a solid platform without spring. Leaping from a springboard may be done in the following fashions:

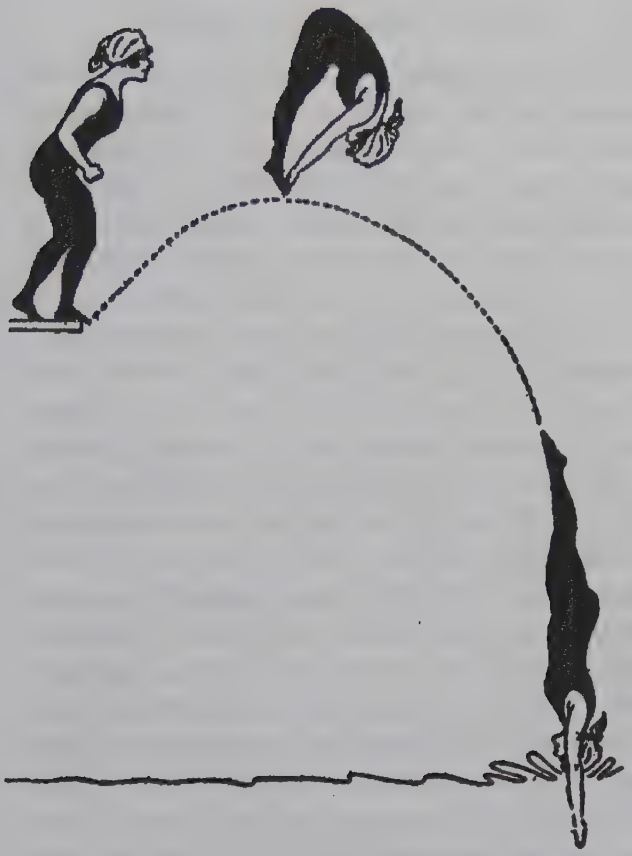
You may stand on the springboard and make the leap with no previous spring. Again if the action of the board is slow, you can increase the power of the leap by preliminary springing up and down on the board. A very effective spring may be made by running out upon the board and leaping from some eight or ten feet back, alighting with both feet on the end of the board, and then springing high into the air.

The most important stage of trick diving is the take-off from the board, as the slight distinction in the way the feet are kicked against the board has much to do with the nature of the body's flight or whirls through the air. These things will be very hard for you to learn from reading, for it is a case where practice is worth infinitely more than theory. But that you may get the possibilities of such action, I would state that

with a springboard twelve or fifteen feet high, it is possible for a good diver while starting from the same position on the board either front or back to enter the water in the following fashions: Either feet first with no turn, or head first with half a turn, or feet first with full turn, or head first with a turn and a half, or feet first with the double turn, and in some rare cases, head first with two turns and a half. Besides these straight turns in one direction, taken from either front or back start, there are a number of combinations such as the side and front turn, as in the "dolphin" dive, or the back and front, as when one jumps off the board backwards, but turns and dives forward. All this variation of twisting and turning in the air, which gives remarkable grace and variety to the art of diving, is accomplished merely by varying the force and nature of the kick against the board.

You may dive or somersault from the trapeze in any of the following positions: Hanging, facing front or back: sitting in the trapeze, facing front or back: hanging by the knees, facing front or back: standing on the trapeze, facing front or back.

The above gives eight positions for the swing. From all these swings, one may enter the water



"Jackknife" dive

either head first or feet first, which would make sixteen stunts. In many of these stunts you can add variety by varying the amounts of aerial somersaulting from nothing to two and a half turns; hence, your sixteen stunts may be multiplied to something between thirty and sixty, according to your powers of aerial somersaulting.

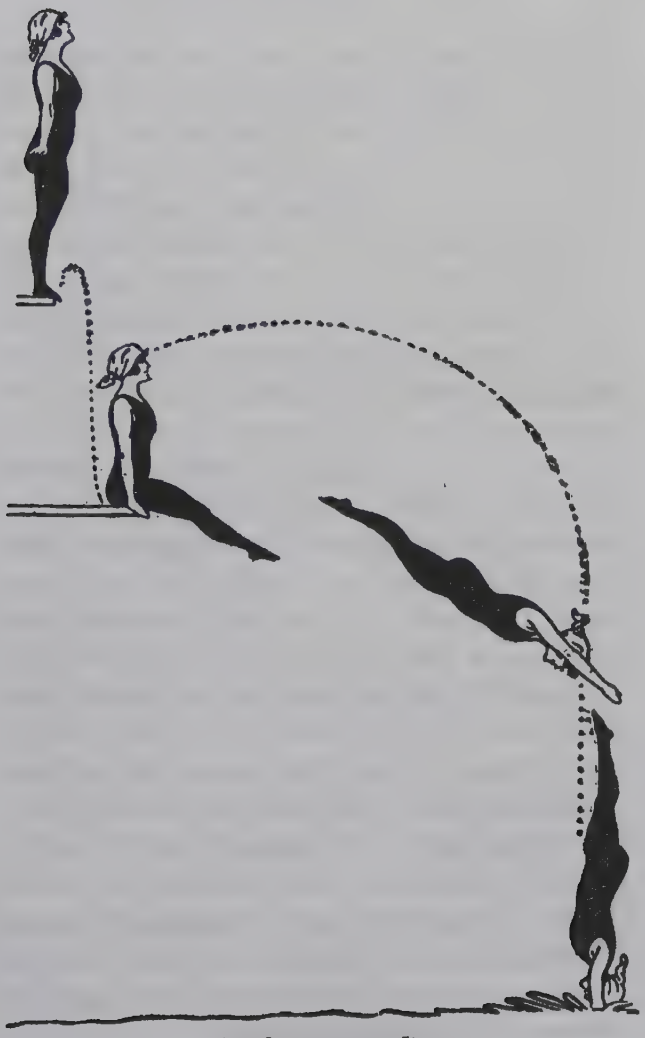
In somersaulting from the trapeze, your object, of course, will always be to enter the water head first or feet first. In your preliminary training, however, you will often miss the proper amount of turn and will strike the water in a somewhat horizontal position. You will now observe a queer phenomenon. When you are somersaulting forward and strike the water face downward, you will receive a very sharp blow from the surface of the water upon the face, but your legs will feel no blow at all. If you strike back downward, your calves will feel the smart; whereas, the back of your shoulders will feel no blow. Now if you are somersaulting backward, it will be your shins that will receive the blow and the face will be spared; whereas, if you fall on the back, the shoulders will be stung and the calves will be spared. These effects are due to the combination of the whirling motion to get the falling motion. From these observations,

you will soon learn which combination of somersaults is most safe and graceful for the various heights. The practical application will depend largely upon the height of your trapezes or bars.

So far as I know, this book contains the longest list of dives and water tricks of all sorts that has ever been collected and published—nearly one hundred in all. Yet if one cared to include every possible distinction, the list could be increased to several times the number I have given. All this goes to show how wonderfully versatile the sport in and above water may become when proper facilities are provided and one gets the fever.

You have all been through or are still going through the circus stage of your career, when the chief ambition of your life was to be an acrobat, and go flying through the air beneath the flopping canvas of the three-ringed tent. But what the acrobat does professionally at the risk of his neck, you can do as an amateur over a swimming pool with no risk at all. The American people are just beginning to wake up to the possibilities of the sport.

One of the prettiest of three trapeze dives, and one that presents no great difficulty, is the "sitting-swing" dive. The diver sitting on the trapeze-bar, after "working up" till the trapeze



Standing sitting dive

traverses an arc of one hundred and twenty degrees (one-third of a complete circle) pushes the trapeze from beneath him on the out-swing—just before the stop—and continues to "sit down" as he sails through the air. The snap back of the legs that turns the body is not made till he gets a few feet from the water. When one leaves the trapeze mid-way of a vigorous swing, the attitude in which the body enters the water is halfway between the vertical and the horizontal, and a skilful diver can do it without disappearing beneath the surface at all.

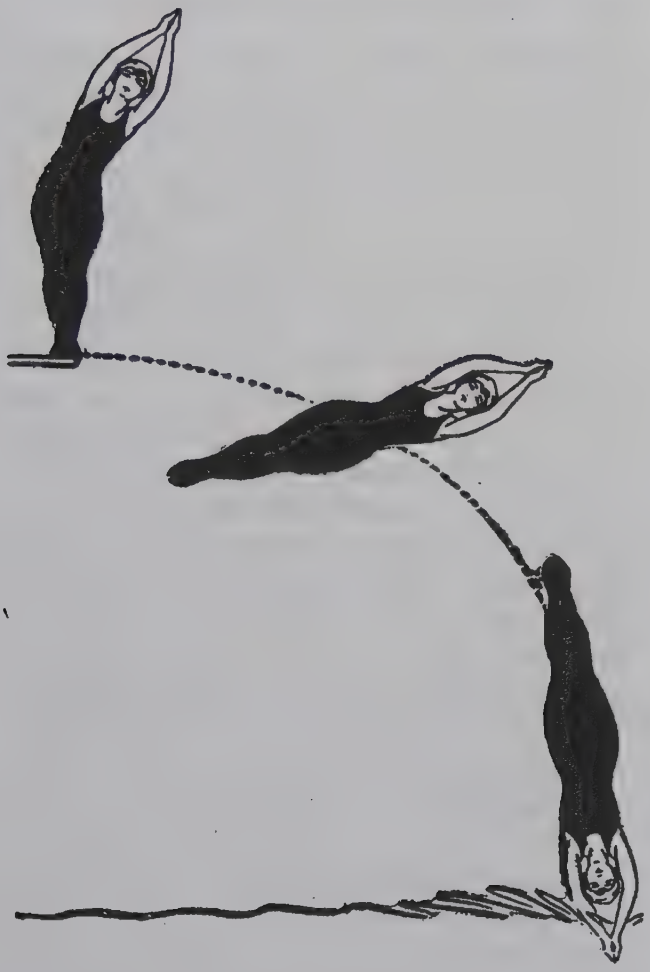
The "butterfly" dive is a high one. Fifty feet is the best height for it, though it may be done at twenty or thirty; but it requires deep water, as the descent of the body is vertical. Spring straight out from the board, and as you turn over, throw out the arms and legs till they are in the form of the letter "X." Just before reaching the water, snap the legs together and bring the arms to the regular diving position.

One of the prettiest of all dives is the "airplane" or "swallow" dive. Its every movement is one of consummate grace and beauty. It takes its name from the fact that it is a good imitation of flying. The diver makes a running start, landing on the end of the springboard, feet together,

head back, and arms at thighs. Don't break the run, but as your feet touch the end of the springboard, spring immediately into the air, jumping both high and far out. As you leave the board, extend the arms and hands at right angles to the body. To give the effect of sailing through the air, the body should be maintained in the horizontal position as long as possible. The best height for making this dive is from ten to twenty feet.

The "jackknife" dive is so called from the fact that in the second position the diver is literally closed up like a jackknife. Imagine a man suspended in mid-air by the seat of his trousers, with head and feet hanging straight down and hands almost touching toes. That is the aerial position in the "jackknife." On the downward descent, the jackknife swings open and the water entry is the regular dive. The "jackknife" may be done as a back dive from the springboard, or as front or back from the trapeze.

Add a forward somersault just after leaving the springboard to the back "jackknife" dive, and you have the forward-somersault-back-"jackknife" dive. It is a very pretty bit of acrobatic work, but requires a good deal of practice to be done well.



Side dive
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There are a number of striking stunts that may be done from the end of the springboard by combining sitting and standing springs preparatory to diving. To do this you should first learn to dive from the board, both in a standing and a sitting position. You may now make the dive by springing the board when standing, alighting on it sitting, and then diving; or by springing back from the sitting posture to the standing position and diving from that. Much variety in the preliminary steps may be introduced.

The side dive from a springboard of ordinary height is one of the most difficult to make gracefully. It is the one dive in which the prayerful attitude—with the palms pressed together—is permissible. Stand on the springboard with your side to the pool and bend over until about to fall, and then give the spring, taking care not to turn front or back. The object is to alight in the water in a neat clean-cut dive, making it sideways through the air, but otherwise similar to the ordinary front dive.

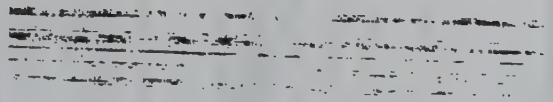
The "dolphin" dive is one which I have used a great deal. It doesn't seem at all difficult for me and if I use it more than some others it is because I think it more graceful. I do the "dolphin" dive from a running start, taking the regu-

lar head-first dive with a pretty high arc—that is, I leap up well as I turn over to the head down position. At the same time I whirl sideways. The particular grace of the dive is due to the effect of the two turns simultaneously. As I am turning over from feet down to head down, I am also whirling from front to back. I enter the water with the back to the springboard as in an ordinary back dive. The "dolphin" dive is sometimes called "whirl" diving.

The "dolphin" dive from a standing start is made as follows: Stand on the edge of the springboard, as for a straight front dive with arms at side, toes gripping edge of board. Now throw the arms quickly above the head and spring into the air, giving an imperceptible back kick of one foot which gives the body a slight whirl on its long axis—as a boy does when he jumps up and whirls in the air, lighting with his feet reversed in his tracks. This gives you the side whirl and the dive is made as from the running start except that you do not go so far out.

If you are good at hand-standing, you can add several dives to your list. You can dive from your hands very much as from your feet, either frontwards or backwards. This is a jump from the hands as the body need not turn over in the

"Dolphin" dive



air. You simply spring far enough out to clear the end of the board. Hand-stand diving is a deep water dive, as there is very little forward motion, and it is more difficult to get the outward turn quickly in striking the water—hence the body may go deep.

Besides the straight drop dives from the hand-stand, there are turning dives; you make a half-turn and enter the water with the feet first, or the whole turn and enter the water head first. This last requires an exceptionally strong-armed man if taken from a standing start, but with a running handspring, almost any number of somersaults becomes feasible. The forearm dive is an exceptionally good one as a woman's exhibition feat, as the pose before diving makes a very odd and pretty effect. One grasps the end of the board with the hands and raises up as for the hand-stand, but with the weight resting on the elbows. From this position the leap may be taken, either by a direct forward pull with the hands, entering the water head first, or by a snap of the legs that will turn the body in a half circle or complete somersault.

The back forward dive can be made only from a springboard that sticks out well over the water, as the body will come up at a position nearer the

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